PERSONALITY TRAITS AND MENTAL HEALTH OF LOCAL AND INTERNATIONAL STUDENTS IN A PUBLIC UNIVERSITY IN MALAYSIA: A COMPARATIVE STUDY

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KUALA LUMPUR

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ABSTRACT

University students are an important pillar in building the society as they represent how the society is shaped generation after generations. Various challenges during study period have been found affecting the students, resulting in an increment of mental health issues. Therefore, student mental health requires a special concern by the educational authorities to avoid undesirable consequences that may accrue due to severe mental health issues. This research presents a cross-sectional study to evaluate the prevalence of mental health among the University of Malaya (local and international) students based on their personality traits. According to statistical information given by Information System of Malaya University, the sampling size has been computed. G-power and Cochran formula have been employed to obtain and verify the sampling size. Thus, a total of 755 samples; include 352 for international and 403 for local Malaysian students, were selected for data analysis. Three personality traits measurements namely: Revised NEO Personality Inventory (NEO-FFI), Clance Imposter Phenomenon Scale (CIPS) and MACH Questionnaires (MACH-IV), have been used for personality data collection. Besides, General Health Questionnaires (GHQ-28) has been employed for screening student's mental health. All the data was collected through self-administrated questionnaires filling by university students after the reliability of the selected tools were verified. The acquired data was analyzed by using multiple statistical methods. The comparisons of personality differences and mental health among the university students (local and international) have been investigated using Two-way Analysis of Variance (2-way ANOVA). In addition, the relationship of personality traits and mental health was examined through correlation and regression analysis. Prior to the data analysis, the normality and construct validity have been checked. All the data were analyzed using IBM SPSS Statistics software (Version 21) and AMOS (Version 21) while Microsoft Office Excel has been used to prepare and tabulate the data. The data

analysis results demonstrated that there were no significant differences between local and international students in terms of personality traits and mental health. However, there was a significant difference between male and female in both personality traits and mental health. In addition, the correlation results revealed that some of the personality traits factors were significantly correlated with mental health state. Finally, yet importantly, the regression analysis was shown that student's mental health condition could be predicted using personality traits. According to the statistical analysis results, a shortened personality traits questionnaire named University of Malaya Personality Traits Questionnaire (UM-PTQ) has been developed using factor analysis approach and the content validity was checked through a panel of experts. The reliability of new tool has been checked using Cronbach's Alpha, the result shows that the developed tool is reliable to use at the University of Malaya as well as any personality and mental health assessment in future.

ABSTRAK

Pelajar universiti adalah tunjang penting dalam pembangunan masyarakat kerana mereka melambangkan bagaimana sesebuah masyarakat dibentuk dari generasi ke generasi. Pelbagai cabaran dalam tempoh kajian telah dijumpai yang memberi kesan kepada pelajar, menyebabkan satu peningkatan dalam masalah kesihatan mental. Oleh itu, kesihatan mental pelajar memerlukan satu perhatian khusus melalui kuasa pendidikan bagi mengelakkan kesan yang tidak diingini yang boleh berlaku disebabkan oleh masalah kesihatan mental yang teruk. Kajian ini memberi satu keratan bagi menilai kelaziman kesihatan mental dalam kalangan pelajar Universiti Malaya berdasarkan sifar personaliti mereka. Berdasarkan kepada maklumat statistik yang diberi oleh Sistem Maklumat Universiti Malaya, saiz persampelan telah dikira. Dengan itu, jumlah keseluruhan sampel ialah 755 termasuk 352 pelajar antarabangsa dan 403 pelajar Malaysia dipilih untuk analisis data. Tiga pengukuran sifat personaliti adalah: "Revised NEO Personality Inventory (NEO-FFI)", "Clance Imposter Phenomenon Scale (CIPS)" dan "MACH Questionnaires (MACH-IV)", telah digunakan sebagai personaliti pengumpulan data. Selain itu, "General Health Questionnaires (GHQ-28)" telah ditugaskan untuk pemeriksaan kesihatan mental pelajar. Semua data telah dikumpulkan melalui "self-administrated" pengisian soal selidik oleh pelajar universiti selepas kebolehpercayaan alat yang dipilih disahkan. Pengambilan data telah dianalisis menggunakan pelbagai kaedah statistik. Perbandingan perbezaan personaliti dan kesihatan mental dalam kalangan pelajar telah disiasat menggunakan "Two-way Analysis of Variance (2-way ANOVA)". Tambahan pula, hubungan sifat personaliti and kesihatan mental telah diperiksa melalui analisis korelasi dan regresi. Sebelum analisis data, normaliti dan kesahihan membina telah disemak. Semua data telah dianalisis menggunakan "IBM SPSS Statistics" perisian (versi 21) dan AMOS (versi 21) sementara "Microsoft Office Excel" digunakan untuk menyedia dan menjadualkan data.

Keputusan analisis data menunjukkan tidak ada perbezaan yang ketara antara pelajar tempatan dengan pelajar antarabangsa dalam bentuk sifat personaliti dan kesihatan mental. Tetapi, terdapat perbezaan ketara di antara lelaki dan perempuan dalam sifat personaliti dan kesihatan mental. Tambahan pula, keputusan korelasi mendapati beberapa faktor sifat personaliti adalah korelasi ketara dengan keadaan kesihatan mental. Akhir sekali yang amat penting, analisis regrasi menunjukkan keadaan kesihatan mental pelajar boleh diramal menggunakan sifat personaliti. Menurut kepada keputusan analisis statistik, satu soal selidik sifat personaliti diberi nama "University of Malaya Personality Traits Questionnaire (UM-PTQ)" telah dikembangkan menggunakan pendekatan analisis faktor. Kebolehpercayaan alat baru telah disemak menggunakan "Cronbach‟s Alpha", hasil menunjukkan alat dibangunkan adalah boleh dipercayai untuk digunakan di Universiti Malaya dan juga personaliti dan penilaian kesihatan mental pada masa hadapan.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF SYMBOLS AND ABBREVIATIONS

IP : Imposter Phenomenon

Mach : Machiavellian

LIST OF APPENDICES

CHAPTER 1: INTRODUCTION

1.1 Overview and Research Motivation

In modern societies, students' mental health becomes a concern for educational authorities due to the importance of mental health as a basic element to have healthy and productive societies. Mental health is a level of psychological well-being or an absence of a mental disorder which has a complex interactive relationship with students' performance. For most youth, the university is a time to become independent, gain valuable skills and build lifelong relationships. In addition, university is their first challenge due to the sudden increase of responsibilities in term of money, making friends, social pressures, experiencing the adjustments of family separation and stress of grades that can be overwhelming, leading to depression, anxiety and substance abuse issues which can affect negatively into student's academic learning and various activities. Figure 1.1 shows some of the students' challenges at the university.

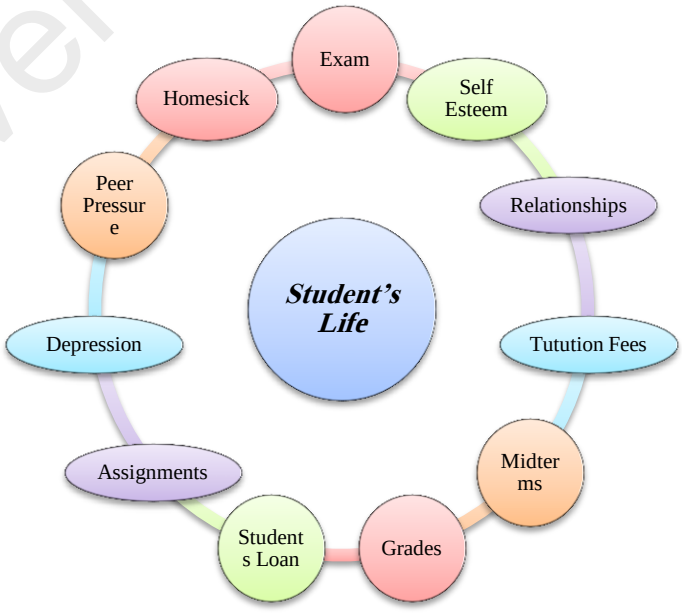

Figure 1.1: Some of the Students' Challenges at University

Mental health is not the only concern of educational authorities, but it is an essential element in any youth establishment to provide strategies and interventions to promote, protect and restore student mental health. However, many surveys have been reported a rise of mental disorders among university students in last two decades. For instance, the National Alliance on Mental Illness (NAMI) shows that a quarter of college students in the USA have a diagnosable illness with 80% of feeling overwhelmed by their responsibilities and 50% experiencing academically debilitating anxiety. Nearly half of these students do not seek help, making these issues, even more, damaging and potentially life threatening. Likewise, the National Survey of College Counselling Centers reported increases in the number of students with mental health problems (Gallagher, 2014). See Figure 1.2.

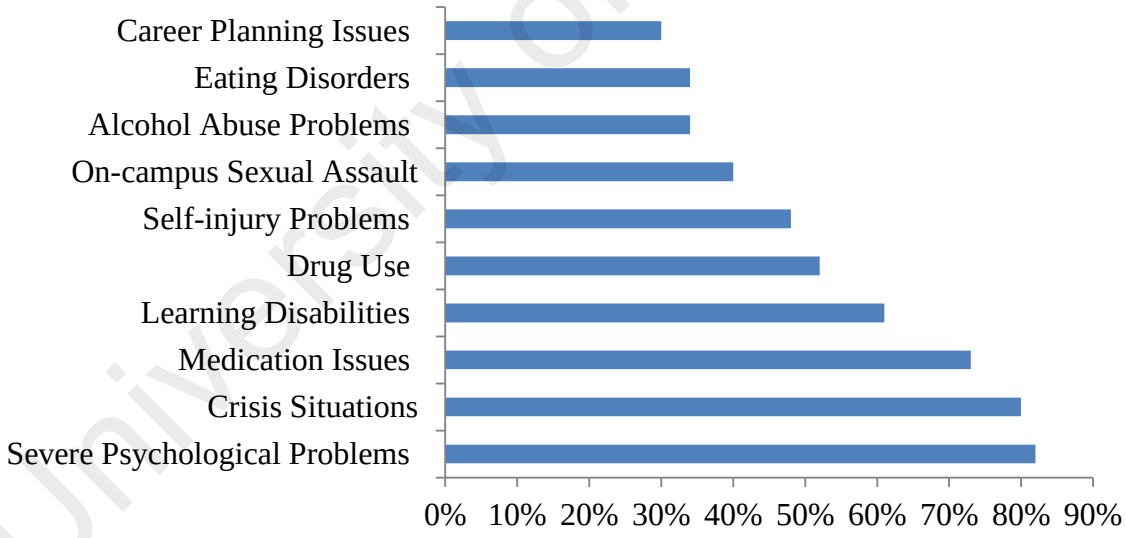

Figure 1.2: An Increment in Mental Health Problems among University Students as Reported By ACCA (Gallagher, 2014)

Moreover, some scholars reported alarming symptoms of depression, stress and substance use among university students in Malaysia (Mohd Sidik, Rampal, & Kaneson, 2003; Sherina, 2004). In a general study by National Health and Morbidity Survey, 12% of Malaysians aged between 18 and 60 are suffering from some forms of mental illness

(IPH, 2008). Therefore, mental health integrity has been investigated by some other scholars.

For example, Nordin et al. (2009) investigated the prevalence of mental health issues in Malaysia universities based on multistage cluster sampling. The results of this study revealed that a total of 34.4% of Malaysian students showed indications of mental problems whilst it was increased to 41.9% in the year of 2011 (Al-Dubai, Al-Naggar, Alshagga, & Rampal). Shamsuddin (2013) stated that students aged between 20 and 24 are most affected by depression. Similarly, a study conducted by Sherina et al, (2004) also found out that 41.9 % of students in a public institution in Malaysia were faced with depression problem. Several researchers tried to specify the cause of these mental problems. Zaid et al. (2007) related 39% of mental disorder to examinations and relationships. While Yusoff et al. (2010) stated that academic related problems were the major stressor among students.

Therefore, university students are one of the most sensitive strata of society, many of whom will become the future's managers and planners, and the mental health of the society is depending upon their mental health. In addition, students make an essential component of the higher education system, coming from various demographic and cultural backgrounds, each of them displaying unique personality traits. These features can be considered as important confounding variables in academic behaviour and better performance.

1.2 Problem Statement

The prevalence of mental disorder has been found in continuous increasing among university students during the last decades. Due to this fact, student mental health has been considered an important area of research and educational authorities concerns. In the early stages of student mental health assessment, statistical information was usually based on students who approach the counselling centers.

In last two decade, many efforts using interview, semi-structured interview, surveys, and questionnaires have been proposed in the literature to precisely evaluate student mental health based on some technique such as general health questioners (GHQ), diagnostic and statistical manual of mental disorders (DSM) and Minnesota multiphasic personality inventory (MMPI). Although most of these methods were shown to be effective in varying degree for student mental health evaluation, a major difficulty relates to its use under particular conditions. In addition, there is still no consensus on reliable methods for student mental health assessment, or criteria to define successful needs assessment efforts.

For an instant, many surveys have an insufficient focus on diverse groups of college students to ensure the understanding of similarities and differences both among and between identity groups. Further, some surveys have incomplete investigation due to the lake of students' participation. On the other hand, statistical information based on university counseling centers cannot be generalized to evaluate the mental health of entire population because usually their data has been collected from students who seek mental health treatment. Thus, mental health of students who didn't approach clinics or counseling centers has been left outside the population. Therefore, more efforts for

comprehensive data collection are needed among university student in order to have a better sight on students' mental health. Mental health evaluation based on the conventional personality traits analysis considered more efficient because personality is one of the most important psychological factors that associated with mental health (Malouff, Thorsteinsson, & Schutte, 2005; R. R. McCrae & Costa, 1991). However, several scholars only investigated the feasibility of personality traits analysis for mental health evaluation.

For example, neuroticism and introversion have been found correlated with mental health issues such as depression and suicidal ideation (S. M. Lamers, G. J. Westerhof, V. Kovács, & E. T. Bohlmeijer, 2012; Mandelli et al., 2015). In another study, associations of Big Five personality theory with mental health issues like anxiety, depression, and addiction has been proven to be strongly correlated (Kotov, Gamez, Schmidt, & Watson, 2010; Mandelli et al., 2015). In addiction studies, personality dimensions and mental health were positively correlated (Habibi, Sadeghi, Haghrangbar, Madanipour, & Azarnoosh, 2013b).

Furthermore, impostor characteristic has been diagnosed with anxiety, depression, self-acceptance, low self-confidence, and irritation (Loretta Neal McGregor, Damon E Gee, & K Elizabeth Posey, 2008; September, McCarrey, Baranowsky, Parent, & Schindler, 2001). Some other researchers reported the correlation of Machiavellian personality with mental health issues such as depression (Bakir, Yilmaz, & Yavas, 1996) , lack of self-esteem (Valentine & Fleischman, 2003) , alexithymia (Wastell & Booth, 2003) , paranoia (Christoffersen & Stamp, 1995) , and perfectionism (Sherry, Hewitt, Besser, Flett, & Klein, 2006).

Understandably, the correlations of personality traits with mental disorder issues vary from aspect to other. In other words, some aspects of personality traits are highly correlated to mental health and some other aspects could be related to genetic, environment or culture. However, few studies only tried to investigate the strength of these aspects to student mental health. Further, several personality traits tools have been found to be used in students mental health assessment. Nevertheless, no method has been developed from these personality traits tools to be specifically used as an indicator of student mental health. Research on student mental health using personality traits is needed to be more investigated indeed. To overcome this limitation, this work will investigate the feasibility of combining Big Five personality traits, Imposter personality and Machiavellian together with general health questioners (GHQ) as a new tool to be used for mental health assessment among university students. It is believed that developing a method by combining these elements will provide a clearer insight into student mental health. By using this method, student mental health can be scan sufficiently and effectively at a different time during their study. The new method will provide an easier scan for student mental health instead if the existing random methods.

1.3 Research Scope

The research will be conducted among university students including graduate and post graduates students. The University of Malaya has been selected to be the domain of data collection sampling population. Data analysis will be based on self-report questionnaires. SPSS and AMOS will be the main software to the analysis while Microsoft Office Excel will be used to prepare and tabulate the data. Expert views and opinion on the development of the short version personality inventory will be obtained for consideration.

1.4 Research Objectives

The main purpose of this research is to assess mental health based on personality traits among Malaysian and international students. Furthermore, a shortened personality inventory based on Malaysian and international student personality traits is developed. To achieve this target, several objectives have been highlighted for this research which includes:

1. To compare the personality traits (Big Five, imposter, and Machiavellian) and mental health among Malaysian and International students by gender.
2. To investigate the relationships between personality traits and mental health among Malaysian and International students.
3. To predict the mental health based on personality traits among Malaysian and International students.
4. To develop a shortened personality inventory based on a finding of the research.

1.5 The Research Hypothesis

The research hypothesis (H1) indicate that there are significant differences for personality traits (Big Five, imposter, and Machiavellian) and mental health among international and Malaysian students by gender. On the contrary, the investigation null hypothesis (H01) assumed that there are no differences for personality traits (Big Five, imposter, and Machiavellian) and mental health among international and Malaysian students by gender. Furthermore, research hypothesis (H2) indicates that there is a

significant relationship between personality trait in both Malaysian and international students. Opposing, the investigation null hypothesis (H02) state that there is no relationship between personality traits and mental health among Malaysian and international. Moreover, the research hypothesis (H3) assumed that the students' mental health is significantly affected by personality traits patterns. In other words, it is possible to evaluate the mental health among students by using students' personality traits (Big Five, imposter, and Machiavellian). While the investigation null hypothesis (H03) assumed that the students' mental health are not affected by personality traits and that what we are trying to investigate through this research.

1.6 Significance of the Study

The investigation in this study will concentrate on the application of mental health evaluation of university students based on Big Five, imposter, and Machiavellian measurement. However, the research aims to develop a tool based on personality trait patterns that can diagnose student' mental health by using statistical analysis. Therefore, it believes that the result of this work will be important for student' mental health evaluation. Since each individual has their own culture, lifestyle and attitudes this study may declare the role of culture, environment, and genetics on personality by investigating the personality traits pattern in distinct groups of International and Malaysian. Therefore, the current study gives us a great opportunity to a better understanding of personality traits differences between both groups of International and Malaysian students.

The comprehensive personality traits pattern may provide an opportunity to get better insight on how to support and care for college students in various aspects of

mental health integrity and academic performance by designing a coherent and purposeful counselling programs, include life skill courses such as stress management, self-esteem, assertiveness, problem solving, and decision making as a subject in between university courses. Additionally, university licensed mental health professionals can benefit from greater insight into the integrated personality traits to identify student strengths and weaknesses and can provide feedback on how the student is improving. Moreover, comprehensive personality traits measurement may give licensed mental health professionals an additional tool to assist the student through the college experience.

This study also benefits student affairs practitioners in their work with college students by providing information and make efforts to support students struggling with mental health issues in residential and classroom settings. Moreover, student affairs professionals can serve and direct students to licensed mental health professionals when they observe students with specific personality traits that may threat mental health integrity among students.

1.7 Definition of Terms

Every important term used in this study is defined conceptually and operationally. This is because clearly defined key terms or variables guide the researcher in data collection, data analysis, as well as generalizability of the research results.

1.7.1 Personality

The literature provides several definitions of the term, personality. A definition of personality according to (J. Burger, 2015) is: “Personality can be defined as consistent behavior patterns and intrapersonal processes originating within the individual.” D. C. Funder (2004) defines personality as: “an individual’s characteristic patterns of thought, emotion, and behavior together with the psychological mechanisms (hidden or not) behind those patterns”.

1.7.2 Five Factor Personality Traits

Personality traits are defined as the relatively enduring patterns of thoughts, feelings, and behaviors that distinguish individuals from one another. Further, there are several terms in psychological literature that are used to define the aspects of a character through its behavior. Examples of these terms apart from personality, are temperament, attitude, mood, emotion etc. Eysenck in (1990) presents Warren’s (1934) definition of temperament as: "the general affective nature of an individual as determined by his inheritance and life history". The definition of temperament that is accepted by Eysneck (1990) is: “Temperament refers to the characteristic phenomenon of an individual’s emotional nature, including his susceptibility to emotional stimulation, his customary strength and speed of response, the quality of the prevailing mood, and the peculiarities of fluctuations and intensity in mood.” A significant differentiation has been made in the literature between personality and temperament. Strelau (1983) sees “temperament” as an inborn characteristic and “personality” as a product of the interaction between temperamental traits and environmental demands and opportunities. In fact, temperament has been said to have higher priority over personality within a system and

to be historically and functionally higher within the hierarchical structure. Temperament theorists focus on the aspects of personality obtained from nature, at birth, rather than those learned after birth.

Personality trait theory, as organized by McCrae and Costa (1997), is a framework of five universal domains that in concert form personality. Often referred to as the Big Five factors (BFF) which are: neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience. Table 1.1 illustrates the big five personality traits.

Table 1.1: The Big Five Personality Factors

Big Five Personality Factors	Description
Extroversion	The definition of this personality dimension is based on Golberg's (1993) lexical approach to the Big-Five factors. The Extraversion dimensions "contrasts such traits as talkativeness, assertiveness, and activity level with traits such as silence, passivity, and reserve" (Goldberg, 1993, p. 27).
Emotional Stability (Neuroticism)	The definition of this personality dimension is based on Golberg's (1993) lexical approach to the Big-Five factors. The Emotional Stability dimension "includes such traits as nervousness, moodiness, and temperamentality" (Goldberg, 1993, p. 27).
Agreeableness	The definition of this personality dimension is based on Golberg's (1993) lexical approach to the Big-Five factors. The Agreeableness dimension "contrasts traits such as kindness, trust, and warmth with traits such as hostility, selfishness, and distrust" (Goldberg, 1993, p. 27).
Conscientiousness	The definition of this personality dimension is based on Golberg's (1993) lexical approach to the Big-Five factors. The Conscientiousness dimensions "contrasts such traits as organization, thoroughness, and reliability with traits such as carelessness, negligence, and unreliability" (Goldberg, 1993, p. 27).
Openness to Experience	Openness to Experience refers to the broad domain of personality comprising active imagination, aesthetic sensitivity, attentiveness to inner feelings (both positive and negative), preference for variety, intellectual curiosity, and independence of judgment (Costa & McCrae, 1992).

1.7.3 Imposter Personality Trait

Impostor syndrome (also spelled imposter syndrome, also known as impostor phenomenon or fraud syndrome) is a term coined in the 1970s by psychologists and researchers to informally describe people who are unable to internalize their accomplishments. Despite external evidence of their competence, those exhibiting the syndrome remain convinced that they are frauds and do not deserve the success they have achieved. Proof of success is dismissed as luck, timing, or as a result of deceiving others into thinking they are more intelligent and competent than they believe themselves to be. Notably, impostor syndrome is particularly common among high-achieving women, (Pauline R Clance & Imes, 1978a) although some studies indicate that both genders may be affected in equal numbers (Laursen, 2008).

According to Clance and Imes (1978a), those that experienced IP often felt emotions or thoughts of being discovered as incompetent. They would attribute their success to hard work, luck, knowing the right people, being in the right place at the right time, or through interpersonal assets such as charm and adaptability. Those with IP tendencies have difficulty in accepting praise or recognition for accomplishments or positive feedback; they will constantly dwell or focus on negative feedback as a reason for their deficits, mistakes, or failures. While fixated on their flaws, those with IP are afraid of shame and humiliation associated with failure and the feelings of foolishness. And finally, those with IP tendencies will overestimate others' intellect and competence while comparing their weaknesses with the strengths of others.

1.7.4 Machiavellianism Personality Traits

Machiavellian orientation is an individual's general strategy for dealing with other people and the degree to which individuals feel they can manipulate others in interpersonal situations. The word comes from the Italian Renaissance diplomat and writer Niccolò Machiavelli, who wrote The Prince, among other works.In modern psychology, Machiavellianism is one of the dark triad personalities, characterized by a duplicitous interpersonal style, a cynical disregard for morality and a focus on self-interest and personal gain (Christie & Geis, 2013).

Machiavellianism is also a term that some social and personality psychologists use to describe a person's tendency to be unemotional, and, therefore, able to detach him or herself from conventional morality and hence to deceive and manipulate others. In the 1960s, Richard Christie and Florence L. Geis developed a test for measuring a person's level of Machiavellianism (1999). Their Mach-IV test, a twenty-statement personality survey, became the standard self-assessment tool of Machiavellianism. People scoring high on the scale (high Machs) tend to endorse statements such as, "Never tell anyone the real reason you did something unless it is useful to do so," (No. 1) but not ones like, "Most people are basically good and kind" (No. 4), "There is no excuse for lying to someone else," (No. 7) or "Most people who get ahead in the world lead clean, moral lives" (No. 11). Using their scale, Christie and Geis conducted multiple experimental tests that showed that the interpersonal strategies and behavior of "High Machs" and "Low Machs" differ (2013). Their basic results have been widely replicated (McIlwain, 2003). Measured on the Mach - IV scale, males are, on average, slightly more Machiavellian than females (Gunnthorsdottir, McCabe, & Smith, 2002).

1.7.5 Mental health

According to WHO (2010), mental health refers to a broad array of activities directly or indirectly related to the mental well-being component included in the WHO's definition of health: "A state of complete physical, mental and social well-being, not merely the absence of disease". Thus, we can say that mental health is related to the promotion of well-being, the prevention of mental disorders, and the treatment and rehabilitation of people affected by mental disorders.

According to Skalski and Smith (2006) mental health, like physical health, mental health may be viewed as existing on a continuum from healthy living to chronic illness. A person with positive mental health uses interpersonal assets and skills to function successfully in his or her daily life. Mental health problems emerge when these assets and skills begin to deteriorate, resulting in a struggle to cope with life's challenges and responsibilities. The continued deterioration of these skills signals the onset of mental illness as significant distortions to thinking, coping, and responding dominate personal functioning and impair a person's ability to perform the activities of daily life. All people fall somewhere on this continuum on any given day (Skalski & Smith, 2006).

1.8 Thesis Structure

Chapter 1 introduces the background of the study, objectives, significance of research, research hypothesis and keywords definitions. Chapter 2 reviews the state of the art on the concepts of mental health and personality trait (Big Five, imposter, and Machiavellian) as well as a brief review of Structural Equation Modelling (SEM). The

research methodology includes the research design, sampling methods, research location and population selection, research tools, data collection procedures, data preparation and analysis methods have all been illustrated in chapter 3. The analysis of the results including comparison, correlation, and regression has been reported in chapter 4. In addition, the shortened personality questionnaire (UM-PTQ) has been stated in the same chapter. Finally, chapter 5 includes the discussion and recommendation of the thesis.

CHAPTER 2: LITRUTURE REVIEW

2.1 Introduction

Mental health is a key to well-being that individuals cannot be truly healthy without it. It involves how we feel, thinks, act, and interact with the world around us. Mental health is about realizing our potential, coping with the normal stresses of life, and contribution to the community. This chapter provides a review of mental health importance, outcome of poor mental, factors affecting on mental health and methods to assess mental health by focusing on university students. On the other hand, one from the most important factors that can effect of student mental health is their personality. Therefore, the personality traits such as imposter trait and Machiavellian personality have been studied and reviewed in the state of the art. The next sections will go through all the mentioned points in more details.

2.2 University Students Mental Health

As stated previously, mental health is a key to people emotional, psychological, and social well-being. It effects on the way of thinking, feeling and behaving in their life. It also determines stress handling, relationship with others, and makes choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood. In contrary, mental illnesses are serious disorders which can affect people thinking, mood, and behaviour.

In particular, mental health problems are highly prevalent among college students. According to National College Health Assessment sponsored by the American College Health Association (ACHA-NCHA), more than one in three undergraduates reported with mental health issues. There are many signs of a mental health condition can be found among student. First of all, poor mental health will lead to low academic achievements. According to the National Institute of Mental Health, 20% of students may have undiagnosed mental health problems that cause difficulty with academic work. For an instant, poor attendance; particularly frequent absences for unclear physical health problems, may be related to underlying poor mental health. Further, difficulties with academic work, social integration, adjustment to school, behaviour regulation, attention, and concentration may be other signs of existing mental health problems among students.

Moreover, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) reported that 80% of college students are alcoholic with 50% of those are indulge drinkers. They also reported 1825 of students; ages of 18 to 24 were dying from alcohol-related injuries every year. Consequently, other students are more likely to be assaulted, sexually abused or injured by someone who has been drinking. In addition, 25% of students who drink regularly report academic problems (Gunzerath, Faden, Zakhari, & Warren, 2014). According to the National Health and Morbidity Survey 2011 in Malaysia, 12.8% (2.3 million) of adults 18 years and above consumed alcoholic beverages and 25% (4.4 million) of adults smoking tobacco product such as cigarettes, cigars, pipes, shisha, etc. ("NHMS," 2011). Impulsive behaviours such as fighting, drinking, and stealing are increasing among students as well. The frequency of violent campus attacks was examined by the FBI, and was found to demonstrate a marked

increase in the 1980s into the 1990s and has probably plateaued since then, although conclusions are very difficult to draw.

Furthermore, suicide and self-injury are one of the most harmful consequences of mental health issues in student's life. A groundbreaking 2006 study conducted by researchers at Princeton and Cornell found that 17% of college students self-injure-cut, carve, burn, or otherwise hurt themselves. More recent data indicate that 12 percent to 23 percent of adolescents have self-injured, and the behaviour, which declines sharply with age, is more common among women as 60% of those who self-injure were female (Whitlock, Eckenrode, & Silverman, 2006). Between 2007 and 2011, suicides by male students in full-time higher education grew by 36%, while female student suicides almost doubled, according to new figures released by the Office for National Statistics (ONS, (2004). Nearly one in 10 reported seriously considering attempting suicide (2007). According to a study of 26,000 students from 70 colleges and universities in 2009, 6% of undergraduates and 4% of postgraduate students reported having seriously considered suicide in the previous 12 months (Drum, Brownson, Burton Denmark, & Smith, 2009). According to ("NHMS," 2011) in Malaysia, 1.7% (0.3 million) reported to have suicidal ideation and 1.1% (0.2 million) reported to have attempted suicide in the past.

2.3 Factors Effect on Mental Health

Mental health is defined as the presence or absence of psychopathology. In general, psychopathology is often conceptualized as referring to two broadband syndrome clusters, specifically internalizing disorders (e.g., anxiety, depression) and externalizing disorders (e.g., anger/ aggression, rule-breaking behaviour, hyperactivity;

American Psychiatric Association, (2000). These two broad categories of social, emotional, and behavioural problems are yielded using the behavioural dimensions approach, which employs statistical analysis of symptoms to yield the two categories (Whitcomb & Merrell, 2013).

There are several methods commonly utilized to assess and categorize mental health (e.g., rating scales, interviews, checklists of symptom criteria). The most common system in use is the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition Text Revision (2013). This system provides a common language for professionals to use during communication. By using this diagnostic approach, it has been found that one over five-person in the United States has some type of mental health difficulty (Brown, Riley, & Wissow, 2007). Further, the study by the World Health Organization suggests that by the year 2020, neuropsychiatric disorders will increase by over 50% and becoming one of five most common causes of disease, death, and disability worldwide (Satcher, 2000).

2.3.1 Internalizing Problems

Internalizing problems are core disturbances in emotional problem behaviours that are inner-directed and reflect internal distress that is not directly expressed in overt action but indirectly through social withdrawal, anxiety, somatic complaints, or depressed mood (Sabri, 2012). In addition, internalizing problems result from behaviours that are over controlled and over inhibited problems (Durand & Barlow, 2012). Epidemiological studies have indicated that depression and anxiety are two of the most common internalizing disorders (E Jane Costello, Helen Egger, & Adrian

Angold, 2005). These disorders have many outcomes such as risk behaviours (i.e. self-injury, suicide), drug and alcohol dependency, poor academic achievement, and unsatisfactory relationships with others, compared to peers without psychiatric diagnoses (Abela, 2008; Marel et al., 2015). In regards to social outcomes, students with depression and anxiety report poor peer relationships, a high degree of emotional reliance on others, unsatisfactory relationships with best friends and romantic interests, low self-esteem, and deficits in social problem-solving skills (Siu & Shek, 2010).

2.3.2 Externalizing Problems

Externalizing behavioural problems are problem behaviours that entail acting out or under controlled behaviour such as aggression, anti-social behaviours, and opposition. Correspondingly, disorders characterized by symptoms that are external are considered externalizing disorders (Seifert, 2011). In addition, externalizing disorders are described as outer-directed or under controlled and are related to moving against the world. Individuals with externalizing disorders are at odds with society (Fiske, Gilbert, & Lindzey, 2010). Evidence suggests that antisocial or aggressive behaviour, a symptom of externalizing disorders, in adolescence undermines student achievement. Moreover, physical health outcomes, aggression is associated with unwed pregnancy for males and females, in addition to substance use by males (Richards & O'Hara, 2014). In summary, internalizing and externalizing problems are predictive of negative outcomes in personality. Next section the personality traits will explain in more details.

2.4 Personality Theories and Approaches

Personality refers to individual differences in characteristic patterns of thinking, feeling and behaving. The literature provides several definitions of the term, personality. A definition of personality according to Burger (2011) is "Personality can be defined as consistent behaviour patterns and intrapersonal processes originating within the individual." Funder (2012) defines personality as "an individual's characteristic patterns of thought, emotion, and behaviour together with the psychological mechanisms (hidden or not) behind those patterns". Further, several terms in psychological literature are used to define the aspects of a character through its behaviour. Examples of these terms apart from personality are temperament, attitude, mood, and emotion. Temperament refers to the characteristic phenomenon of an individual's emotional nature, including his susceptibility to emotional stimulation, his customary strength and speed of response, the quality of the prevailing mood, and the peculiarities of fluctuations and intensity in the mood (Hans Jürgen Eysenck, 1990). A significant differentiation has been made in the literature between personality and temperament. Strelau (1983) sees "temperament" as an inborn characteristic and "personality" as a product of the interaction between temperamental traits and environmental demands and opportunities. In fact, temperament has been said to have higher priority over personality within a system and to be historically and functionally higher within the hierarchical structure. Temperament theorists focus on the aspects of personality obtained from nature, at birth, rather than those learned after birth. Next sections introduce the approaches used in some of the prominent personality models in the literature. Meanwhile, the purpose of this section is an overview of different approaches based on personality. Figure 2.1 illustrate the main personality the types of personality approaches.

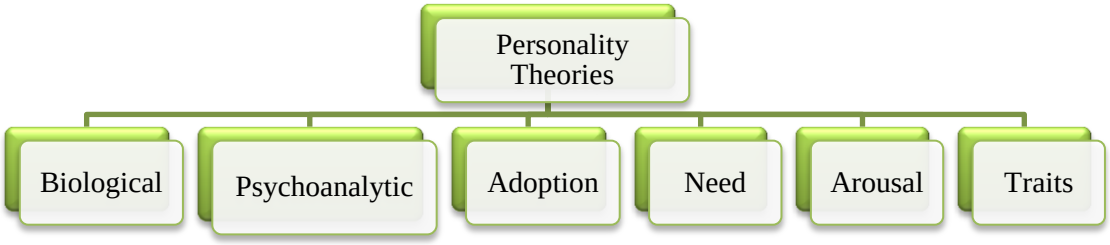

Figure 2.1: The Main Personality Approaches

2.4.1 The Biological Approaches

The basis of this theory is that human behaviour is the product of a complex biological system. There are three main areas of investigation in personality theories adopting this approach: the relationship between brain and anatomy, biochemistry and personality and the relation between genetics and personality. The anatomy of the brain is studied using imaging techniques like MRI and PET. The association of the mental anatomy to personality and behaviour is made using these imaging techniques and the association of the obtained information in cases of brain surgery and brain injury. There is an association between personality and biochemical like neurotransmitters and hormones. Epinephrine and Norepinephrine rise in situations of fight or flight and are a part of the adrenaline rush. Another response to stress, anxiety or depression is the level of Cortisol. Serotonin is associated with high and low aggression. There are other, more complex associations between biochemistry and personality. The other important direction is the relationship between genetics and personality. Evolutionary theory attempts to explain the origin and development of a personality. The initial genetic makeup of people differentiates their personality. It influences the inclination to certain ways of adaptation. Adaptation to the environment results in the further evolution of personality (Zuckerman, 2005).

2.4.2 The Psychoanalysis Approach

The classic psychoanalytic theories explain human behaviour in terms of the interaction of various components of personality. Sigmund Freud was the founder of this school of thought. Freud divides human personality into three significant components: the id, ego, and super-ego. The id acts according to the pleasure principle, demanding immediate gratification of its needs regardless of the external environment; the ego then must emerge in order to realistically meet the wishes and demands of the id in accordance with the outside world, adhering to the reality principle. Finally, the superego (conscience) inculcates moral judgment and societal rules upon the ego, thus forcing the demands of the id to be met not only realistically but also morally. The superego is the last function of the personality to develop and is the embodiment of parental/social ideals established during childhood. According to Freud, personality is based on the dynamic interactions of these three components (Zuckerman, 2005).

2.4.3 Adoption Theory

Karen Homey's adaptation theory defines personality by the three styles people choose to adapt to the world and to deal with anxiety. These are the passive, the aggressive and the withdrawn styles. The adaptation style is reflected in the defense mechanisms people use in dealing with situations. Barret & et al (2002) has studied the way people interact in this context. As per Homey's original theory an individual will respond or adapt to a situation by either moving toward, against or away from people.

2.4.4 Need Theory

Henry Murray's theory deviates from the Freudian premise of biological instincts and biological processes being the only source of an individual's personality and drives. Murray took into account the influence of learning due to the influence of the environment on personality. Murray's theory follows the evolutionary theory to personality in that the individual's personality is defined as a function of both his innate genetic makeup and the characteristics that are learned through experiences with the environment (Zuckerman, 2005). Murray (Murray) defined a set of psychogenic 'needs' that are used to understand personality. The psychodynamic pleasure principle is based on the principle that people seek pleasure and conversely, avoid pain. He defined a psychogenic need as "readiness to respond in a certain way under certain conditions". Eysneck (1990) summarizes Murray's theory as distinguishing between primary needs and secondary needs. The former are said to be biologically based while examples of the latter are "need for achievement" and "need for affiliation".

2.4.5 Arousal Theory

An individual can be considered as a system that absorbs and discharges energy. Absorbed energy is transmitted to the environment by allocating it to various activities. The arousal theory looks at these energies as drives, internal states or behaviour elicited by a stimulant. Powell (1979) further summarizes Eysenck's theory as defining the neuronal networks to be in a state of activity, in a state susceptible to activation or alternatively in an inert state that is harder to activate. Eysenck's theory on cortical excitation and inhibition differentiates human beings based on "the speed with which excitation and inhibition are produced, the strength of the excitation and inhibition

produced and the speed with which inhibition is dissipated". These are in the context of the cortical response of the physical brain to a stimulus. H. J. Eysenck (1997) elaborates that personalities are characterized by the neuronal activity level, the cortical activity level or the excitation and inhibition regulated by (RAS) Reticular Activation System. Extroverts are characterized by an inhibited state of cortical activity. Introverts are said to be in a cortically excited state. Further, they are said to have a highly redundant processing system that manifests in them being overly cautious. The Ascending Reticular Activating System (ARAS) regulates "the balance between excitatory and inhibitory neural mechanisms". An introvert is characterized by a high level of cortical arousal and is overly affected by most stimuli. Extroverts have a low level of cortical arousal. They ignore a big portion of received stimulation.

2.4.6 Type and Trait Theory

Type and traits theories have evolved as the most pragmatic personality models. The approach in these cases is to identify and enumerate characteristics that can be used to represent different types of personalities and behaviours. Type theories compartmentalize people to be of different types. Thus, the type personality models are based on a set of personality types and individuals are usually assigned a single personality type. These have been criticized for being restrictive, as they do not take into account the variation in a person's behaviour due to different situational settings. Trait theories, although based on a set of entities that characterize personality, are different. The basis set of traits consists of elements that in combination define a personality. This approach allows for flexibility in defining an individual's personality with substantial provision for complexity. In the following of this section, some of the prominent trait theories summarize.

Gordon Allport: His theory gave importance to motives and the concept of 'self'. Allport and Odbert (1936) studied unabridged dictionaries of the English language and formulated a list of 17,953 words. These were words whose meanings described an aspect of personality and were each treated as a personality trait. These traits were organized hierarchically based on the extent of their influence on behaviour. For instance, Allport used around 10 traits as the "central traits" of a person. Allport also gave importance to the influence of environment on personality. He took into account the changes made in personality due to adaptation to environment and conditioning by experiences. Allport's perception differed from the common definition of traits in that, he saw them in the context of an individual, as the entities that are integral to an individual and to define his personality. This is different from defining traits as a set of factors that are used to represent all possible human behaviours in general (Buss & Plomin, 2014).

Hans Eysenck: his theory developed a type theory with the definition of types in terms of traits. Eysenck's theory proposes the neuronal network to be in two states, active or inert. The active state includes a neutral state that is ready to be activated and the inert state is relatively harder to activate. The (RAS) reticular activation system is responsible for excitation or inhibition via cortical arousal. He used these definitions to characterize the traits Extroversion and Introversion. The excitation of the brain and a consequent low cortical arousal are associated with extroversion. Conversely, the inhibition of the brain and a high level of cortical arousal are associated with individuals who have high introversion.

Eysenck's theory also explains anxiety in the context of pre-attentive and attentive processes. Individuals with high anxiety tend to pay high attention to

threatening stimuli. The aspect of Eysenck's theory of relevance in the given context is its importance to higher order traits or super factors. The genetically determined super factors are measured using the Eysenck Personality Questionnaire (EPQ) and are derived from factor analysis. Three super factors that were initially proposed are Extroversion, Introversion, and Neuroticism. Psychoticism was later added to this set (Buss & Plomin, 2014).

Raymond Cattell: he believed that the factors that describe personality are genetically determined. He conducted the study by formulating 181 groups of personality-describing words. These were used by subjects to describe people they knew. These adjectives were further distilled into 12 clusters using factor analysis. With an additional 4 factors, a total of 16 factors were said to be used by individuals to describe people. These were termed "source traits" and were said to be the core elements of personality that manifested into outward behaviour or "surface traits". These personality traits were used to create the 16PF Personality Questionnaire. This personality test is widely accepted and used in clinical research and practical assessments of personalities.

2.5 Big Five Traits Theories

There is more than 20,000 traits adjective, which people used to describe characteristics. That is calls trait-descriptive adjectives. Traits are characters, which describe how people are different. Personality traits are defined as "consistent patterns of thoughts, feelings, or actions that distinguish people from one another" (Buss & Plomin, 2014). There is emerging agreement that five broad factors capture most of the variability in normal personality traits. These "Big Five" trait domains consist of

Extraversion (traits like energetic and sociable), Agreeableness (traits like considerate and kind), Conscientiousness (traits like hard-working and orderly), Emotional Stability (or its converse, Neuroticism, that includes traits like nervous and tense), and Openness (traits like artistic and creative). Several trait theories are based on the Lexical Hypothesis. In 1936, Gordon Allport and H. S. Odbert (1936) proposed the Lexical Hypothesis as "Individual differences that are most salient and socially relevant in people's lives will eventually become encoded into their language; the more important such a difference, the more likely is it to become expressed as a single word". As Acton (1998) states, this hypothesis justifies factor analysis in deducing characterizing factors from personality related terms from language dictionaries. Proof of the convergence proposed by the hypothesis was provided by theoretical research and led to the development of a model that describes personality using five aggregate-level trait descriptors.

Allport and Odbert extracted 18,000 personality-describing words from dictionaries of the English language. The lexical analysis led to the distillation of this list to 4500 personality-describing adjectives. These were traits of personality that characterize an individual over a relatively long period. Raymond Cattell further consolidated this list using factor analysis and came up with 16 basic factors. W.T. Norman later found that personality could comprehensively be represented using five factors. In 1981, a consensus was reached by leading researchers in the area (Lewis Goldberg, Naomi Takamoto- Chock, Andrew Comrey and John M. Digman) on the fact that most research pointed to five standard factors to represent personality (2010). This five-factor model has been widely accepted as a standard by personality psychologists. Psychological studies have concurred on five personality factors through adjectives analysis and through analysis of data from personality rating questionnaires. R. R.

McCrae and Costa (2003), noted that the five-factor model formalizes these five traits by organizing them in a personality model.

2.5.1 Introduction to the Five-Factor Model

The five-factor model developed by Costa and McCrae allows for the convenient parametric description of a character's personality. This model consists of the five types: Openness, Conscientiousness, Extroversion, Agreeableness, and Neuroticism (1992). John (1999), noted that previous theories had not succeeded in formulating a set of traits that could predict characteristic behaviour. The five-factor model succeeded in developing a taxonomy of traits to consistently predict behaviour in different situations. Popkins (1998) shown that this model had been accepted as a standard and years of studies in the field has led to the model being accepted as a standard personality model. Wide practical use of the model in research has allowed for the formulation of associations between behavioural characteristics and various configurations of the five factors.

2.5.2 Defining the Five Factor

Psychologists have used two approaches to identify and define the five factors. R. R. McCrae and P. O. John (1992) describe the methods of lexical analysis and the method of using questionnaire data to extract the traits in detail. Most researchers have concluded with the same five factors to describe personality. There has been a wide consensus among theorists in deriving the definitions of the factors. The following is a summary of the widely used definitions and characteristics of these five factors: Openness, Conscientiousness, Extroversion, Agreeableness, and Neuroticism.

Openness to Experience: There are some variations in the definitions of Openness. There is a debate between defining O as openness to experience or, a wider definition of O as intelligence, But as McCrae and John (1992) discuss, intellect is included in the aspects that define O. Openness can be to susceptibility to consciousness, to a variety or to experiences. Experiences could include a variety of feelings, thoughts or values. Thus, there can be an openness to several kinds of experiences. Theories that distilled the factor O using questioner studies define it with a broad scope. The included characteristics are creativity, intellectual interests, differentiated emotions, aesthetic sensitivity, the need for variety and unconventional values. Openness to experience is defined by John (1990) as "Appreciation for art, emotion, adventure, and unusual ideas; imaginative and curious". In terms of cognitive style, John (1990) characterizes people with high O as imaginative and creative, intellectually curious**,** appreciative of art and sensitive to beauty. They think and act in independent and unconventional ways. People with low O are down-to-earth and conventional, prefer familiarity and are resistant to change. Popkins (1998) refers to openness as willingness "to make adjustments in notions and activities in accordance with new ideas or situations".

Conscientiousness: In association with a conscience, McCrae (1992) called C the inhibitive factor that restricts impulsive behaviour. Along the same lines, he also associates the concepts "Constraint" and "Prudence" with C. John (1990) elaborates this factor as "the way in which we control, regulate, and direct our impulses". Individuals high on C are controlled and do not take snap decisions and are not impulsive. Conscientiousness is also associated with self-discipline by John in (1990). According to McCrae and John (1987), individuals of this type are organized, careful and neat.

They also characterize conscientious individuals with diligence and thoroughness. Individuals with high C are said to be strong-willed and are associated with persistence.

Extroversion: defines a trait characterized by a keen interest in other people and external events, and venturing forth with confidence into the unknown. John (1990) associates extroversion with social adaptability. Extroverts are characterized by a tendency to seek stimulation and the company of others. They like engaging with the external worlds and other people and are prominently visible in group settings. Extroverts are also associated with high energy, enthusiasm, positive emotions and are action oriented. Introverts, by contrast, have lower energy, are deliberated and are indifferent to or, avoid social stimulation. In terms of the arousal theory, Extroversion is associated with being sociable, energetic and assertive. Introversion is associated with independence and stability.

Agreeableness defines as the measure of "how compatible people are with other people, or basically how able they are to get along with others". According to McCrae (1969), Agreeable people are compassionate and cooperative as opposed to being suspicious and antagonistic. The degree of Agreeableness is directly proportional to cooperation and social harmony. John (1990) explains characteristics of Agreeableness in terms of the value placed on getting along with other individuals. Agreeable people are high on this scale and are resultantly considerate, friendly, helpful, and willing to give higher priority to the interests of others. Less agreeable people, on the other hand, place self-interest above getting along with others. These individuals are less likely to be friendly. In addition, John (1990) finds agreeable people to have optimistic views. These individuals are trusting and believe other people are honest.

People with low agreeableness are sceptical of others' motives and, as a result, are suspicious, unfriendly, and uncooperative.

Neuroticism: The definition of the term Neuroticism is most agreed on. Popkins (1998) finds that theories label "N" as "negative emotionality", or conversely "adjustment". John (1990) identifies a prominent feature of neuroticism as the proclivity to feel negative emotions. Individuals with high N are inclined to often experience more than one negative feeling. These individuals are inclined to react to situations with anxiety, anger, or depression. They are more likely to interpret a situation, even a neutral one, as threatening. However, individuals with low N need not be characterized by a higher likelihood of feeling positive emotions. The frequency of being in a positive mood or reacting positively is in fact influenced by the individual's level of Extroversion.

As per John (1990), another feature of N is emotional reactivity. Individuals with high N tend to react emotionally to neutral situations or situations in which other individuals would not get emotional. These reactions, apart from occurring easily and being relatively more negative are also more intense and have a tendency to last for longer periods. McCrae and John (1992) find that individuals with low N are less emotionally reactive and are not upset easily. McCrae and John (1990) describe a third salient feature of high N as low emotional regulation. People with high N are emotionally unstable and often experience mood swings. In comparison**,** personalities with low N are emotionally stable, well-adjusted, relaxed and even tempered. Below the sub-factors of Five Factor Model is presented in Table 2.1.

Table 2.1: Big Five Factor Personality Facets

Personality Traits	Low	High
Openness	Stubborn Nominative Uncreative Narrow-minded Unoriginal	Curious Intelligent Imaginative Creative Original Artistic
Conscientious ess	Disorganized Negligent Undisciplined Irresponsible Unsystematic Careless	road-minded Responsible Organized Persevering Persistent Through Goal-directed Careful
Extroversion	Introverted Reserved Withdrawn Silent Inactive Unsocial	Assertive Energetic Talkative Social Gregarious Lively Active
Agreeableness	Aggressive Argumentative Suspicious Confrontational Impolite Inflexible Egoistic Insensitive	Cooperative Forgiving Modest Tolerant Trustworthy Courteous Flexible Soft hearted Altruistic Sensitive
Neuroticism	Self-confident Secure Assured Hopeful Encouraging	Anxious Insecure Sensitive Moody Depressed Emotional Angry Embarrassed Worried

2.5.3 The Reasons for Using Big Five Factor

The five-factor taxonomy has been studied, critiqued and accepted by psychologists. To look at one such study by Popkins et al. (1998) the taxonomy is analysed and measured to see if it meets the criteria of being a good personality theory. R. R. McCrae and P. O. John (1999) define the personality process to include the "thoughts, feelings and actions of an individual". The five-factor model successfully and concisely represents the characteristic individual differences between people and their personality processes. Apart from fulfilling this basic requirement, the five-factor model also satisfies the following significant aspects of a correct personality model.

Appropriateness across Cultures: As Popkins (1998) notes, psychological researchers define a universal model as one that is independent of cultures or situations. However, keeping in mind the vast variety in human nature, this definition is a guideline a good theory should tend towards. The Five Factor model has been proven to be universal. The factors hold across cultures and languages. Digman (1990) conducted a study in Japan, the Philippines, and Germany and found the factors stable. He proposes that the way people construe personality is characterized by fundamental features that are independent of language and culture. In addition, R. R. McCrae and P. O. John (1992) stated that with adults, the five factors have consistently shown validity across observers and across time.

Comprehensiveness: R. R. McCrae and P. O. John (1992) credit the five factors with have included all the required relevant traits. The Five Factor model is comprehensive in that, it systematically enumerates the personality traits and provides these traits as predictors of human behaviour in most universal situations.

Quantifiable: Popkins (1998) critiqued the Five Factor model to be an empirical model. Although the model does not provide interpretations of the collected data, the model based on factor analysis is compatible with statistical data collected through questionnaires. Even more relevantly, the five factors can be defined as variables that are quantifiable in a normalized range. This gives the convenience of representing the traits parametrically using sliding scales

BFFM in Comparison with other Theories: The Big Five Model originated as a result of the convergence of research of personality theories. Popkins (1998) states it to be compatible and complementary to other theories. R. R. McCrae and P. O. John (1992) note that this can be explained by the fact that all the personality theories have the common goal of identifying the fundamental features of the same entities, human personality, and behaviour. The Five Factor model formalizes individual differences. The five factors are a result of statistical analysis and represent the basic dimensions of human personality.

Applications of Big Five: The Five Factor model has various applications ranging from personality assessment in a corporate setting to diagnosing and curing pathological psychological conditions. Listed below are a few applications of the five-factor model in the given context.

In research: The five-factor model and factor analysis, in general, has been applied extensively in academics, research, experimentation, and learning. The model also aids in correlating the resulting empirical data and helps to further the research of personality theories as well as other research that focuses on human behaviour. As Digman (1990) says, the Five Factor model provides a way to represent individual

differences using a conveniently sized set of parameters that have reliable means of measuring and validating.

In personality assessment: The Five Factor model is suited for any task that requires personality assessment of an individual or a group of individuals. The personality model has been applied in practical areas including education, forensic psychology, health psychology and organizational psychology. It is used regularly to assess employees. McCrae and John (1992) note another practical application as an assessment of interpersonal relations in a particular everyday setting.

For behaviour prediction: Personality psychologists apply the individual assessment to predict behaviour. The goal of the big five model is to scientifically correlate traits and specific behaviour. For instance, it gives a scientific and reliable method to access employee behaviour in a given situation or, to design environments that cause employees to behave efficiently. John (1990) notes that the model is also used to predict "life outcomes" of individuals based on their personality configurations. For instance, high N and low A and C indicate a likelihood of smoking. High O indicates a wider musical taste. Popkins (1998) noted that the behavioural prediction could be extended to other behaviours like financial success and religious faith.

Suitability of BFFM to Task at Hand: The Five Factor model allows for the convenient parametric description of a character's personality. They describe as the Five Factor model as an effective tool to describe human personalities in common terms used by people in general. O, A and C are familiar terms to people with no psychological background. Furthermore, years of studies in the field has led to OCEAN being accepted as a standard personality model. This wide acceptance not only proves the

model to be tried and tested but being a universal standard has allowed for further development in psychology, based on the model. Wide practical use of the model in research has allowed for of associations between behavioural characteristics with various configurations of the five factors. Analysis of empirical data collected through questionnaires and other data collection methods yield this association of personality and behaviour. These results have been extrapolated to predict behaviours of different kinds. Of relevance, in this case, is the ability to be able to predict physiological behaviour via psychological states. To conclude Popkins' (1998) analysis, the Five Factor model has been shown to be compatible with psychological theories, based on factor analysis or based on other approaches. Most recent personality theorists have used statistical analysis and the Five Factor model has been found to be compatible with other trait theories. Boeree (2004) has pointed out that, in spite of following different statistical analysis approaches; the different trait theorists have proposed parallel sets of personality dimensions. Most theorists have included E and N in their lists. Further, even though other personality theories define personality in terms of a different set of characterizing factors that seem unrelated to the five factors, R. R. McCrae and P. O. John (1992) state that "item analysis "has shown these factors to tend towards the five factors. The apparent compatibility of the factor model with other personality theories and models corroborates its validity. It also allows for interpretation of the associations to nonverbal behaviour formulated in the current work to be easily applied in the context of a different personality model.

2.5.4 The Big Five Model and Gender

Vianello, Schnabel, Sriram, and Nosek (2013), investigated the personality traits Big Five and its relationship with gender on 14,348 general population. Participants

have completed five NEO domains (Goldberg, 1999) and a 40-item adjective measure ("Mini-Markers") of the five-factor structure were used to measure Extraversion, Neuroticism, Conscientiousness, Agreeableness, Openness and Gender Identity online. Their result confirms the previous result indicating that Agreeableness, Conscientiousness, Extraversion, and Neuroticism reported higher among the female population than male. Vecchione, et al. (2012), conducted the longitudinal study on the relationships of personality Big Five and gender differences on 403 from Genzano, a small town near Rome. Data collection was done at three different time points where T1 and T2 participants were high school students, and T3 participants were college students. Participants have completed the measure of Big Five Questionnaire. Their result showed that there are differences between men and women in terms of personality dimensions. At time 1 (Age 16), females scored significantly higher on measures of Agreeableness, Conscientiousness, and Openness. Males, in contrast, scored higher than females on a measure of Emotional stability. In both males and females, Conscientiousness and Openness increased linearly from age 16 to age 20, whereas Energy/Extraversion remained stable. Emotional stability slightly increased in males and remained stable in females. Agreeableness increased linearly in males and showed a quadratic trend in females, first increasing and then declining over time. Finally, females showed higher inter-individual variability than males on the trajectories of Conscientiousness and Emotional Stability.

Roccas, et al. (2002), examined the relationship between Big Five personality dimensions and personal values on 246 introductory psychology students at an Israeli university. Participant completed the measures of value inventory, NEO Personality Inventory (NEO-PI), Positive/Negative Affect Scale, and Religiosity. Their result showed that Agreeableness correlates most positively with benevolence and tradition

values, Openness with self-direction and universalism values, Extroversion with achievement and stimulation values, and Conscientiousness with achievement and conformity values. Correlations of values with facets of the five factors reveal nuances of the facets and clarify ambiguities in the meanings of the factors. Values and personality traits exhibit different patterns of correlation with religiosity and positive affect. Findings support the idea that the influence of values on behaviour depends more on cognitive control than does the influence of traits. Srivastava, John, Gosling, and Potter (2003), studied compared five-factor personality and other personality theory in respect to trait changes during life course on 132,515 sample aged 21 to 60. Participants completed measures of Big Five personality via the internet. Agreeableness and conscientiousness have shown to be increased during adulthood. Neuroticism decreased among women. They concluded that Big Five personality dimensions are complex phenomena subject to a variety of developmental influences.

2.5.5 Personality Traits and Nationality/ Cultures

Heine and Buchtel (2009), reviewed about personality (personality traits Big Five) in different cultures. They concluded that personality traits especially Big Five personality are consistent across different culture. Furthermore, they discussed that in collectivistic cultures people show a higher level of traits which more is concerning about understanding others than in individualistic cultures. Eap et al. (2008), investigated the comparison of Five Big personality dimension among 320 Asian American and 242 European American male university students. The result showed that there are significant differences between Asian American and European American in traits of extroversion, openness, neuroticism, and conscientiousness. Mohammed, Unher, and Sugawara (2009), conducted across sectional on the Big Five personality

dimension among 83 Japanese and 100 Egyptian students. Participants completed the measure of NEO-FFI Inventory. Their result showed that neuroticism and conscientious was significantly different between Japanese and Egyptian. Agreeableness, Openness to experience and extraversion showed similarities between both groups. Allik and McCrae (2004), investigated the personality traits among 36 cultures by using five-factor personality model on 27,965 college student and adults volunteers of from five continents. Subjects completed the NEO-PI-R is a 240-item questionnaire that assesses 30 specific traits which explain the five basic elements of personality contains neuroticism, extraversion, openness, agreeableness, and conscientiousness. Although temperament was not significantly in relation with personality elements but, cultures from the proximate geographic area shown to have similar characteristics while remote geographic area such as Europe, American, African, and Asian cultures have significantly different personality profiles. They reported that extroversion, openness, and agreeableness reported high among the former. They suggested that personality may effect by genetic integration in the proximate areas and cultural features.

2.5.6 Personality and Mental Health

Ghazinour and Richter (2013) investigated the relationships of personality, mental health, and some socio-demographic variables on 121 female social work Swedish students. Subject completed a demographic form, the Temperament and Character Inventory, and the Symptom Checklist. Their result indicates that personality traits highly predictor of mental health scores. Subjects reported a higher level of harm avoidance, self-transcendence, and reward dependence also reported more somatization, obsessive-compulsive, and phobic-anxious symptoms, and less hostility compares to general Swedish population. Habibi, et al. (2013a) investigated the personality

characteristics and mental health on 100 subjects selected randomly from drop-out addiction centers aged 25-55. Participants completed the set of surveys contained NEO-FFI and 90-R-SCL. Their result showed the significant positive relationship between personality dimensions and mental health.

Kjell, et al. (2013) studied cross-cultural relationships of personality characteristics and well-being on two sample of Iranian (122) and Sweden (190) high school students population. Participants completed Big Five personality inventory, The Satisfaction with Life Scale, The Positive Affect, and Negative Affect Schedule, and The Scales of Psychological Well-Being. Their result showed that subjective and psychological well-being reported to be higher among Sweden participants whereas, agreeableness, conscientiousness, and openness were higher among Iranian. Extraversion and Neuroticism were reported similar among two cultures. Moreover, there was the relationship between neuroticism and well-being in both cultures, while openness reported being related with well-being among Iranian sample, and extraversion was related to well-being among only Sweden sample. Finally, they concluded that certain personality characteristics (extroversion, openness, and conscientiousness) are related to well-being in regards to the culture. Although neuroticism was seemed to be related to subjective well-being regardless of culture. The complexity of the results suggested more research in this area.

Kokko, Tolvanen, and Pulkkinen (2013) conducted the longitudinal survey about the associations between personality dimensions and well-being on 369 individuals. Participants completed the Big Five Personality Inventory, Psychological Well-Being, and Life satisfaction. Their result showed that well-being is highly correlated with extroversion (positively) and neuroticism (negatively). In addition,

conscientiousness, openness, and agreeableness are significantly correlated with well-being as well

Lu (1994) investigated the associations of personality, mental health, and major stressors life events, minor daily hassles, and perceived university stress. They found that anxiety is predicted by life events while, depression is predicted by daily hassles, extroversion negatively correlated with locus of control, neuroticism is positively correlated with university stress, neuroticism was the main predictor of somatic symptoms, and extroversion has vulnerability effect on somatic symptoms. Furnham and Cheng (1999) studied personality dimensions in correlations with happiness and mental health among 384 undergraduate participants from British, China, and Japan aged 16-40. Participants completed Eysenck Personality Questionnaire, Oxford Happiness Inventory, and Langner 22-Item Measure (which measures mental health and physical conditions). Their result indicated that British students have the highest levels of happiness, mental health, and extroversion than other groups. Extroversion has shown to be a major correlation of happiness among all groups whereas, neuroticism had a strong relationship with mental health. N. Ghorbani, Watson, and Morris (2000) investigated the associations of personality, mental health, and stress on 94 Iranian managers. Participants completed the measures evaluating personality, mental health and stress. Their result confirmed that the role of personality in stress and mental health is valid cross-culturally among Iranian as well.

Anthony (2001), studied the relationship of well-being and personality dimensions. They employed Big Five personality dimensions and well-being measure along with other well-being related factors on undergraduate York University students. The validity of each well-being dimension was supported by simple correlations.

Principal component and multiple linear regression analyses were used. They found that Ryff's multidimensional well-being scale is a useful research tool for assessing well-being.

Cheng and Furnham (2003) examined the correlations and causes of happiness and depression among 234 adolescents in schools and colleges (mean age=18.23 years). Participants were asked to complete self-report measures of, self-esteem (Rosenberg Self-Esteem Scale), personality (Eysenck Personality Questionnaire), affect (Positive Affect; Negative Affect), happiness (Oxford Happiness Inventory), and depression (Beck Depression Inventory).

Multiple regressions indicated that extraversion was significantly correlated with positive and negative affect, depression, and happiness. Neuroticism showed to be significantly correlated with positive and negative affect, depression, and happiness in the same level. Self-esteem and relationship with parents were directed predictive of happiness and the opposite predictor of depression Extraversion and neuroticism were predictors of depression and happiness by mediating of self-esteem. Further, sex also showed direct predictive power for depression ($\beta=0.20$, $P<0.01$). Result of analysis clearly that, self-esteem, personality, and demographic are predictors of happiness and depression.

Diener, Oishi, and Lucas (2003) reviewed past literature about the associations of well-being and personality with regards to different cultural contexts. They concluded that personality traits such as extroversion, neuroticism, and self-esteem are effective on the levels of well-being. Besides personality, life events and environments also have a large effect on the well-being of people. Cultural variables found to explain and moderate well-being differences among different societies. It is very challenging to

assess well-being across different societies, yet this kind of cross-cultural measures it valuable and still so many unanswered questions need to be answered.

Egan (2003) conducted cross-sectional and correlational designs were used on 167 samples from out-patient, in-patient, and court referrals. Participants completed the NEO-five factor Inventory to measure Big Five personality traits and The International Personality Disorder Examination-Screening Questionnaire (IPDE-SQ) to measure personality disorder (self-report) which has defined by DSM-IV. Participants were interviewed through IPDE semi-structured interview as well. High Neuroticism, low Extroversion, low Agreeableness and low Conscientiousness appeared to be strongly correlated with most personality disorders, especially Paranoid, Schizotypal, Borderline and Antisocial personality disorders. High Neuroticism was associated with higher scores on the self-report measures of personality disorder. High Extroversion was not related to any of the 'outgoing' personality disorders. High Conscientiousness was not related to a higher score on the measure of Compulsive personality disorder.

Widiger and Anderson (2003) Considerable research has been done on the effect of personality traits on the etiologic of depression with the consideration of gender differences. They investigated the associations between personality traits and personality disorders and their relevance to women and gender issues. They found that personality functioning is one of the significant factors of depression in women as well as a depression treatment. Maladaptive personality traits may affect the efficiency of depression treatment. Maladaptive personality trait which increases vulnerability to depression is inflexible than normal personality traits. Liu, Zhang, Xiao, and Feng (2004) evaluated personality characteristics, major satisfaction, and mental health of 294 military medical college students. Participants completed Symptom Checklist 90

(SCL-90) and Eysenck personality questionnaires (EPQ). They concluded that students with introverted, psychogenic, and neurotic personality are more likely to be dissatisfied with their major, and greater major dissatisfaction may lead to increased mental problems. Yang (2005) investigated the personality and mental health of 550 junior medic students from Harbin Medical University. Participants completed the measures of Eysenck personality questionnaire and Self-rating depressive scale (SCL-90). They concluded that junior medical students score higher in compulsion, anxiety, psychosis, and crankiness that normal population Chinese. Personality problem and severity of mental health were positively correlated.

Chioqueta and Stiles (2005) investigated the relationship between personality traits, depression, hopelessness, and suicide ideation on university students (N = 219). The results of the factor-level multiple regression analyses revealed that depressive symptoms were positively predicted by Neuroticism and Openness, and negatively predicted by Extraversion. Hopelessness was positively predicted by Neuroticism and negatively predicted by Extraversion. Finally, suicide ideation was positively predicted by Neuroticism. Accordingly, depressive (Buckley *et al*., 1999) symptoms were positively predicted by the Neuroticism facets, angry hostility, and depression, and negatively predicted by the Extraversion facet, positive emotions, and by the Openness facet, actions. Hopelessness was positively predicted by the Neuroticism facet, depression, and negatively predicted by the Extraversion facets, assertiveness and positive emotions.

E. J. Costello, H. Egger, and A. Angold (2005) reviewed the prevalence of child and adolescence psychiatric in a previous decade. They report that prevalence and burden assessment of child and adolescence has significantly improved. Methods of

different kind of interviews (respondent based, interviewer based, best estimate) and data collection (paper and pencil, computer assisted, interviewer or self-completion) had helped researchers and clinician to facilitate diagnose. They concluded that some of the life course psychiatric disorders would appear from childhood and adolescence. Stewart, Ebmeier, and Deary (2005) assessed the relationship of personality and mood states. Eight hundred seventy 870 Edinburgh's Universities students aged above 17 were the participants of their study. Personality was assessed by using the Eysenck Personality Questionnaire-Revised (EPQ-R) and the Tridimensional Personality Questionnaire (TPQ). The mood was assessed by the State and Trait Anxiety Inventory (STAI), the General Health Questionnaire 28 (GHQ-28) and the Oxford Happiness Inventory (OHI). Harm Avoidance (TPQ), Neuroticism (EPQ-R) and Extraversion (EPQ-R) were highly correlated with both positive and negative mood.

Neuroticism and Harm Avoidance was equally predicting the negative mood. Harm Avoidance has a negative correlation with Happiness. Harm Avoidance was a predictor of both Extraversion and Neuroticism. Psychoticism had a small but significant correlation with mood variance. (Stewart et al., 2005) conclude that, traits of Neuroticism and Harm Avoidance have a high significant effect in the state of mood. Low Harm Avoidance tends to be extroverts and emotionally stable (low Neuroticism).

Hui-min (2006), investigated the relationship of personality and mental health on 128 undergraduate from three universities in Henan province. Participant was asked to complete Eysenck Personality Questionnaire (EPQ) which is included 4 dimensions (Extroversion, Neuroticism, Psychoticism, And Social Desirability) and Symptom Checkkist90 (SCL90) which is include 9 dimension and 90 questions. Their result indicated that personality and mental health of a student are strongly correlated

internally especially introversion, emotional instability, and psychoticism aspect of personality.

Jylhä and Isometsä (2006) explored the relationship of personality dimensions specifically neuroticism with mental health issues such as depression and anxiety. Participants were 441 individual from the general population at two finish cities aged 20 to 70. They asked to fill up Beck Depression Inventory (BDI), Eysenck Personality Inventory (EPI), and Beck Anxiety Inventory (BAI). For diagnosing lifetime mental disorder participants were asked about past 12 month's history of any mental disorder. Their result showed that neuroticism was strongly correlated with depression and anxiety while, participants who reported lifetime mental disorder in past 12 months, versus extroversion, was negatively correlated with depression, anxiety, and self-reported lifetime mental health in past 12 months. For gender, age, and education, BDI scores were significantly associated with neuroticism, extraversion, and age, whereas BAI scores were associated only with neuroticism. Neuroticism is strongly associated with depressive and anxiety symptoms, and introversion is moderately associated with depressive symptoms in the urban general population. The relationship of these personality dimensions to both self-reported lifetime mental disorders and use of health services for psychiatric reasons strengthens the clinical validity of these personality dimensions.

Li et al. (2008) investigated the factors influencing on mental health among Chines College students. factors of age, gender, ethnicity, the level of satisfaction with major, and place of origin were evaluated in associated with 3 mental health group. Group A: severe mental health issues which need counselling serves necessary, group B: symptoms of adjusting problems, group c: no symptoms of mental health. Mental

health was assessed by University Personality Inventory. Their results revealed that, ethnicity, gender, age, and level of satisfaction with major influence the level of student's mental health.

Steel, Schmidt, and Shultz (2008) reviewed the associations of personality and subjective well-being by the method of meta-analysis. They reviewed personality and well-being by measures of NEO and categories of SWB (for example life satisfaction). They concluded that different personality and SWB inventories may have fundamentally different and the relationship between these two factors is much stronger than other meta-analysis had reported. Song et al. (2008) analysed the relationship between depression and three personality factors in college freshmen from Beijing (988) and Hong Kong (802). There was no sex difference in prevalence in Beijing while the prevalence was significantly different between sexes in Hong Kong. High neuroticism, concern over mistakes, doubts about actions, low self-esteem, and poor organization were associated with depressive symptoms in both sites. In college freshmen in Hong Kong suggests that their mental health is not as satisfactory as that of their counterparts in Beijing. The strong relationship between certain personality features and depressive symptoms is similar in both regions. Personality differences in the two sites explain only part, but not all, of the difference in depressive symptoms between the two sites.

Md Nordin, Abu Talib, and Yaacob (2009) examined the relations of personality and loneliness and its effect on mental health of 1468 Malaysian undergraduate students. Participants were recruited from five universities by cluster sampling. Subject completed the General Health Questionnaire (GHQ-12), Big Five Inventory, and revised UCLA Loneliness Scale. Their result showed that 34.4 percentages of students are at risk of mental health problems. Also, extroversion,

agreeableness, conscientiousness, openness, and loneliness showed to have a significant relationship on mental health. There was a significant difference in mental health between the year of study, the field of study, ethnicity, and religion. Finally, they reported that loneliness, neuroticism, and extroversion were significant predictors of mental health.

Paterson, Reniers, and Völlm (2009) studied the differences of personality traits, mental health, and empathy of 54 volunteers and 52 non-volunteers students for telephone helpline. Participants completed the Big Five Inventory, Interpersonal Reactivity Index (IRI, for evaluating empathy), and Mini International Neuropsychiatric Interview (for evaluating participants mental health). Their result showed that volunteers scored higher empathic concern and agreeableness than non-volunteers. Mental health reported being similar between both groups. The big five model of personality is currently the most comprehensive descriptive model of normal personality.

Wang and Miao (2009) examined the relation of personality traits, mental health, and coping style among medical students in Xi'an Jiatong University School of Medicine. Subjects completed the measures of Eysenck Personality Questionnaire, Coping Style Questionnaire, and the Symptoms Checklist-90. They found that there is a relationship between personality, the level of emotional health, and coping style. Personality traits and coping style were correlated with mental health. Neuroticism, rationalization, paranoid ideation, education level of the father, fantasizing and academic stress were factors which affect the level psychological and emotional health. Smillie et al. (2009) stated that Personality traits leads individuals into particular affective states and have important role mental illnesses in particular. Their study has

taken 50 bipolar patients, 50 unipolar patients, and 50 controls matched for age and sex. Participants in the control groups were screened for symptoms of depression. The result showed that unipolar patients from controls, such that unipolar patients were higher on neuroticism and lower on extraversion. Bipolar patients showed a similar personality profile too but were not clearly distinguished from, unipolar patients.

Ahadi and Basharpoor (2010) examined the relations of personality dimension, mental health, and sensory processing sensitivity on the sample of 180 Iranian students. Participant completed scales of NEO (Big Five Inventory), GHQ (General Health Questionnaire), and sensitive person scale. Their result revealed that excitation ease showed a positive correlation between neuroticism and mental health and negative correlation to extroversion. There was positive relationship between aesthetic sensitivity and openness to new experience

Tosevski, Milovancevic, and Gajic (2010) reviewed the personality and mental health of university students. They concluded that university students represent the national capital and investment for the future, with an implicit mission both for their families and for society as a whole. However, they face multiple stressors such as academic overload, resistance pressure to succeed, competition with peers and in some countries financial burden and concerns about the future. As all this may lead to psychopathology, the health of university students has been the subject of increasing focus in recent years. Recent findings have shown multiple protective and risk factors are involved in the psychological well-being and distress of university students. Specific risk factors for the development of psychopathology are high test anxiety, lower self-efficacy, as well as certain personality traits. Moreover, some students arrive at college with already existing mental health problems. The most frequent mental disorders

among students are substance abuse, depression, self-harm and suicide, eating and anxiety disorders. Obtaining and improving knowledge about the student population is a crucial factor in the development of mental health promotion programs in order to meet their needs and to help them cope with various problems. Better understanding and care of the personality profile of university students can be helpful in academic and career choice and prevention of future mental health problems

Leandro and Castillo (2010) explored the relationships of coping style in stressful events with personality, depression, and anxiety. They also studied the modulating effect of gender in relation to personality and coping styles. Two hundreds and seventy four participants (43% male& 56% women) with an age range of 17 to 62 years old (M = 29.8; SD = 11.7) filled up the package of questionnaires consist of stress-coping styles, personality traits, the locus of control, self-esteem, anxiety, and depression. The method of correlation analysis and mean differences was used to analysis the data. The result indicates that generally, different dimensions of personality were related to different coping strategies. More specifically, the female tends to use emotion-focused coping strategies than men do, although both equally used task-focused strategies. The results of overall measures of coping style indicated that task-focused strategy has been used by subjects with high self-esteem, the low external locus of control, and low depression and anxiety the most. On the other hand, the emotional-focused strategy had been used by subjects with low self-esteem, the high external locus of control, and high depression. The influence of personality on the way people cope with stressful situations has been discussed many times. It has even been discussed whether stress-coping styles and personality traits could be confused.

Ghazinour, Lauritz, Du Preez, Cassimjee, and Richter (2010) studied the status of mental health and personality on 103 police trainees from Sweden. Participants completed "Temperament and Character Inventory", and The Symptom Checklist-90-Revised (SCL-90-R). Their result showed that police trainees are mentally healthier than the normal population. Police trainees' personality characters are more developed in aspects of strength, reliability, and responsibility. All aspects of psychopathology were positively associated with harm avoidance while negatively associated with self-directedness. Overall, trainees reported sufficient mental health and personality characteristics, especially female population showed to have enough strength to handle stressful events. Lală, Bobîrnac, and Tipa (2010) investigated the associations of personality types and level of stress on 500 students from Romania. Demographic information and other related questionnaires were completed by participants. The result showed that there is a high level of stress among students. Type A and C personality showed to be highly associated with stress level.

Andriola, Di Trani, Grimaldi, and Donfrancesco (2011) clarified the relationship between depression and personality in men and women who are expecting a baby. ANOVAs showed that pregnant women had higher levels of depression, reward dependence, and self-transcendence than the expectant fathers did. Hierarchical Multiple Regression Analysis in the pregnant women group showed that harm avoidance and self-directedness were significant predictors of the level of depression. In the expectant fathers, only self-directedness was a significant predictor of depression. du Preez, Cassimjee, Lauritz, Ghazinour, and Richter (2011), investigated the relationships between personality and mental health on 1145 police trainees from South African Police Academy, 648 males, and 497 females. Participants completed "Temperament and Character Inventory", and The Symptom Checklist-90-Revised

(SCL-90-R). Their result showed that men have less level of somatization, anxiety, depression, and phobic anxiety symptoms, harm avoidance and a higher level of persistence than women. The two most important demographic variables which are predicting personality are gender and English language proficiency.

Farnam, Farhang, Bakhshipour, and Niknam (2011) evaluated the personality dimensions of patients with mixed anxiety/depressive disorder and its implication on treatment's result. For that, 80 patients were diagnosed as a mix depression/anxiety by structured clinical interview. Patients were asked to complete NEO inventory and anxiety/depression and stress Scale (DASS) in order to measure the personality dimensions and severity of illness in the beginning and end of the treatment. Introversion, neuroticism, and disagreeableness were higher in the sample compared with the normal individual.

Josefsson et al. (2011) studied the relationship of personality and well-being in the sample of 1940 volunteer from Cardiovascular Risk in Young Finns. Participants were completed Multidimensional Scale of Perceived Social Support (PSS) and Temperament and Character Inventory (TCI). Their result indicated that self-directedness and well-being were strongly associated. More, cooperativeness was associated with most dimensions of well-being (especially perceived social support). Self-transcendence showed to be effective on well-being by cultural influences. Finally, they concluded that personality has a strong effect on overall well-being (affective and non-affective).

Chang, Law, and Chang (2011) examine the impact of four selected personality traits, namely interpersonal problems, ideas of being persecuted, social students in

introversion, and self-depreciation, on the inclination to be depressed among students in a Taiwanese university. Depression is a problem for many university students in Taiwan. Understanding which personality traits are related to depression in Taiwanese students is important for student affair administrators and medical professionals and will help them to prevent and treat this debilitating illness. They declared that Depression is a problem for many university students in Taiwan. They suggested that understanding which personality traits are related to depression in Taiwanese students is important for student affair administrators and medical professionals and will help them to prevent and treat this debilitating illness. The results of the study indicate that depression represents a serious problem in the lives of many students at Chang Gung University.

Joshanloo and Afshari (2011) examined the correlations of personality traits, life satisfaction, and self-esteem on 235 Muslims Iranian university students. They completed the Big Five Inventory, Satisfaction with Life Scale, and Rosenberg Self-esteem Scale. Their funding indicated that big-five personality dimension counts 25% of life satisfaction variance. Extraversion, Neuroticism, and self-esteem were the strong predictors of life satisfaction. In addition, self-esteem was shown to mediate the effects of extroversion, neuroticism, conscientiousness, and agreeableness upon life satisfaction. Furthermore, female students scored higher life satisfaction than male. Gender moderated the relationships between life satisfaction and conscientiousness.

Garcia (2011) investigated the personality and well-being on 289 Sweden high school students. Participants completed the temperament and character inventory (TCI) to measure student's personality, NEO personality inventory-revised (NEO-PI-R), and psychological well-being was measured by Life Satisfaction, Positive Affect, and

Negative Affect. Their result showed a strong relationship between Neuroticism, Conscientiousness, Persistence, and Self-directedness with well-being.

Tse, Rochelle, and Cheung (2011) indicated that social functioning is a mediator between personality traits such as harm avoidance or self-directness and depression. Self-directedness was also shown to have direct effects on depression. The results support the social reinforcement theory of depression and provide a theoretical account of how the variables are related based on the correlation. A sample of 902 individuals completed a self-report questionnaire consisting of the Temperament and Character Inventory (TCI), Beck Depression Inventory (BDI), and Social Adaptation Self-Evaluation Scale (SASS).

H. A. Ghorbani, Ahmadi, and Shayan (2011) studied the relationships between personality type and mental health on 50 psychologist students from Iran. Participants completed general health Goldenberg and two type personality questionnaire. Their result indicated that there is a significant relationship between personality type A and mental health. Type A personality showed to have a negative association with mental health while type B had a positive association with mental health.

Abdel-Khalek (2012), explored the associations between personality traits and mental health on Kuwaiti volunteer sample aged 18-32. Participants completed the Eysenck Personality Questionnaire, Arabian Version of Five Personality Factor, and Arabic Scale of Mental Health. They concluded that mental health was positively correlated with extroversion, conscientiousness while negatively correlated with neuroticism.

Chapman, Weiss, Barrett, and Duberstein (2012) The structure of the Eysenck Personality Inventory (EPI) is poorly understood, and applications have mostly been limited to the scales of Neuroticism, Extraversion and Lie scales. Using a hierarchical factoring procedure, we mapped the sequential differentiation of EPI scales from broad, molar factors to more specific, molecular factors, in a UK population sample of over 6500 persons. Replicable facets at the lowest tier of Neuroticism included oversensitivity, mood lability, nervous tension, and rumination. The lowest order set of replicable Extraversion facets consisted of social dynamism, sociology, haste, jocularity, communalism, and impulsivity. The Lie scale consisted of an interpersonal virtue and a behavioural diligence facet. Users of the EPI may be well served in some circumstances by considering its broad Neuroticism, Extraversion and Lie scales as multifactorial, a feature that was explicitly incorporated into subsequent Eysenck inventories and is consistent with another hierarchical trait. De Clercq and De Fruyt (2012) conducted the review on the validation of Big Five personality dimensions and its relevance to childhood background of personality psychopathology. They supported that five-dimensional personality models are describing childhood's trait differences and extend it into life spam personality difficulties. Furthermore, they suggested that several childhood personality disorders may be predicted certain adulthood disorders. Finally, they suggested that personality dimensions and pathology are standards tools for measuring mental health in adulthood.

Garcia (2012)) studied about the correlations of personality and mental health on 109 high school students from Sweden. Participants were asked to complete surveys of NEO Personality Inventory-Revised, Temperament and Character Inventory for assessing personality dimensions, and the Positive Affect and Negative Affect Schedule for assessing well-being. Participants were grouped by four categories based on their

negative and positive affection. Self-actualizing (high PA and Low NA), high affection (high PA and high NA), low affection (low PA and low NA), and self-destructive (low PA and high NA). Their result showed that low level of negative effect was correlated with the low level of neuroticism. Nevertheless, despite the experience of high NA respectively, low PA, high and low affective reported higher Self-Directedness than self-destructive adolescents.

Shirazi, Khan, and Ansari (2012) examined the relationships of personality and mental health among 300 students from Aligarh Muslim University. Participants completed the measures of Mental Health Inventory and NEO-FFI. Their result showed that mental health and personality traits are significantly correlated. Mental health was significantly predicted by agreeableness, neuroticism, and openness and there were no significant differences between professional and non-professional mental health and personality between both genders. Lamers, et al. (2012) examined the relationships of psychopathology and positive mental health with personality in accordance with two continua model on the sample of 1161 aged 18-88. Participants completed the measures of personality by international personality item pool, psychopathology by brief symptoms inventory (BSI), and positive mental health by mental health continuum-short form (MHC-SF). Their result released that Neuroticism was shown to be the main correlations psychopathology, whereas extroversion and agreeableness were associated with positive mental health. Their result supported the tow continue model by showing how personality traits are differently associated with psychopathology and positive mental health.

Moshki, Atarodi, Moslem, and Taheri (2012) conducted the experimental study to promote students mental health and self-esteem on 154 medical Iranian students.

Students were randomly assigned into two groups and were asked to complete Rosenberg self-esteem scale, GHQ-28, and enabling-reinforcing and predisposing factors. Experimental group was trained based on PRECEDE model. Their result indicated that health-promoting programs could improve student's mental health and self-esteem. Moosavi, Ghotnian, and Torabzadeh (2012) studied the relations of personality traits, mental health and emotional intelligence on 50 female undergraduate students in Tehran. Participants completed the Big Five Personality Inventory (BFI), Emotional Intelligence Questionnaire Times, and General Health Questionnaire. Their funding indicated that there is a positive correlation between emotional intelligence and mental health. Finally, Big Five personality factor, extraversion, and mental irritation can predict 48 percentages of mental health and mental health can predict 61% of emotional intelligence.

Hill and Needham (2013) examined three propositions that are widely (but not universally) accepted in the gender and mental health literature. First, women and men have similar or equal rates of overall psychopathology. Second, affective disorders like anxiety and depression, which are more common among women, and behavioural disorders like substance abuse and antisocial personality, which are more common among men, are functionally equivalent indicators of misery. Finally, women are more likely to respond to stressful conditions with affective disorders while men are more likely to respond to stressful conditions with behavioural disorders. Our review of previous research shows little to no consistent empirical support for any of these propositions. Results from national studies of overall psychopathology or "any disorder" are, at best, mixed and limited to a narrow range of mental health conditions.

A comprehensive test of gender differences in overall psychopathology would require a systematic and exhaustive examination of gender differences across the known universe of mental health conditions, but this may be impossible to achieve due to a lack of consensus on the universe, the proliferation of diagnostic categories, and the tendency to anthologize the mental health of women. There is no empirical evidence to suggest that women substitute affective disorders for behavioural disorders or that men substitute behavioural disorders for affective disorders. There is no theory to suggest that affective and behavioural disorders should be treated as comparable indicators of misery. Some studies support the idea that women and men respond to stress in different ways, but most do not. Numerous studies show that women and men respond to stressors with higher levels of emotional distress, substance abuse, and antisocial behaviour. They conclude with seven recommendations to advance theory and research and several general reflections on the sociological study of gender and mental health.

2.6 The Concept of Imposter Personality Traits

The Impostor Phenomenon discovered and then named by two psychotherapists, Dr. Pauline Rose Clance and Dr. Suzanne Imes, who were colleagues and researchers in the Atlanta area in 1974. They began to see clients and students who were intelligent and high-achieving, but who doubted their success and stressed about their abilities (Clance, 1985). After years of counselling clients and researching this phenomenon, Clance defined the typical "impostor" and created the Clance Impostor Phenomenon Scale (CIP, 1985) that measures the intensity that an "impostor" could experience. Surprisingly, as many as 70 percent of the population in general experience the Impostor Phenomenon at some level in some circumstances (Clance, 1985).

Although "impostors" come from different economic and social backgrounds, from different fields, are at various levels of their careers, and have different talents and abilities, they all have intense feelings that characterize this phenomenon. Impostors believe they are intellectual frauds who have attained success because they were at the right place at the right time, knew someone in power, or simply were hard workers, never because they were talented or intelligent or deserved their positions (Pauline Rose Clance, 1985). The so-called "impostors" have "done well in school, earned the correct degrees, received awards and praise from their colleagues, and advanced rapidly in their careers"(p. i). However, this has never been internalized. "Impostors" do not enjoy their successes because they do not believe they deserve them. As a professor and practicing psychotherapist at Georgia State University, Clance recognized the "impostor" symptoms among her students, another faculty, and among the staff (Clance, 1985). The early research done on this topic reveals 12 dissertations (published between 1979 and 1989), 11 articles (published between 1978 and 1989), and three books (Clance, 1985, 1986; Harvey, 1985).

2.6.1 The Imposter Components

There are six components of the Impostor Phenomenon according to Clance (1985) that are described below. It is important to note that not all "impostors" experience all of the components; however, the higher the score on the Clance Impostor Phenomenon Scale (CIP), the more components one is likely to experience.

Treadmill experience: The first component is the impostor cycle which Clance (1985) describes as a treadmill experience. The person is faced with a new challenge or needs to perform and then experiences feelings of anxiety, self-doubt, and dread" (p.

51). Her needs to do well trigger one of two automatic responses: she either procrastinates or she digs in and does intense and prolonged hard work. Either way, she suffers. She is constantly thinking, "How good am I really?" (p. 25). When the challenge has passed, the "impostor" experiences only a brief time of relief and happiness. "But the next time a similar situation arises, the whole vicious cycle is repeated, and the success of the previous project is negated" (p. 26). Time after time the "impostor" experiences the same pressure:

The need to be special, to be the very best: The second component of the Impostor Phenomenon is "the need to be special, to be the very best" (Clance, 1985, p. 26). This stems from experiences in early childhood when she is the top performer. But in later years when she cannot retain that position, she feels like a failure. The "impostor" is not comforted by the fact that she is among the exceptional people in her field, no longer the best.

Superwoman (and Superman) Complex: The third aspect of the Impostor Phenomenon is referred to as the "Superwoman (and Superman) Complex" (Glance, 1985, p. 26). The "impostor" believes that she should be able to do anything attempted with ease and with perfection. When this does not occur, she feels like a failure. This impossible position often causes the "impostor" to feel overwhelmed.

The fear of failure: The fear of failure is the fourth component frequently experienced by the “impostor" (Clance, 1985). In order to avoid this unpleasant experience of failing, the “impostor" frequently goes to great lengths (by over-preparing) to make sure that she doesn't make a public mistake. Shame and humiliation are usually found at the root of this fear and are associated with early mistakes and less-

than-top performance in childhood. It is interesting to note that the high goals set as an adult are usually self-imposed, and only the “impostor” (p. 27) usually notices the failures.

Impostors cannot or will not believe the evidence that they are indeed intelligent and/or successful: Clance, in her counselling practice, saw examples of people distorting and discounting praise they received which enabled them to continue to believe that they were failures. This "denial of competence and discounting praise" (p. 27), is the fifth component of the Impostor Phenomenon (Clance, 1985, p. 27).

Fear of and guilt about success: The last component listed by Clance (1985) is the "fear of and guilt about success" (p. 27). Her research seemed to show that women experience this aspect of the Impostor Phenomenon because they fear that their personal success will interfere with their relationships with the men in their lives. Men experience this aspect of the Impostor Phenomenon because they fear being seen as more successful than their fathers do. Also, if "impostors" perceive "their successes as atypical of their family, race, sex, or the region in which they live (they) may experience guilt about those successes" (p. 28). In both cases, the fear is related to separation and rejection. Another factor in this component is that "impostors" are afraid that success may bring more responsibilities and that they will not be able to repeat their success in subsequent tasks.

2.6.2 Description of the Imposter Personality Traits

This section briefly describes some of the features of persons experiencing strong imposter feelings.

1. The Impostor Cycle. The person faces an exam or project or task. She experiences great doubt or fear. She questions whether or not she will succeed this time. She may experience anxiety, psychosomatic symptoms, nightmares, etc. She works hard and over-prepares, or, procrastinates and then prepares in a frenzied manner. She succeeds and receives positive feedback. The whole cycle is reinforced. She may have the superstitious belief, "I must suffer in order to succeed." Doubting is reinforced (Clance & Imes, 1978; Clance, 1985).
2. Introversion. Introverted persons are much more likely to have high IP scores (Lawler, 1984).
3. The dread of Evaluation. She hypothesizes that others will know all that she does not know.
4. Terror of Failure. She is very afraid of the shame and humiliation associated with "looking foolish."
5. Guilt about Success. She handles this by denying her success.
6. Great Difficulty in Internalizing Positive Feedback. She has trouble experiencing the excitement that comes with the acceptance of such feedback. She avoids the excitement that would come if she accepted praise. She has difficulty dealing with energy and excitement and is afraid of the effects.
7. Generalized Anxiety.
8. Overestimating Others While Underestimating Oneself. She has a tremendous respect for the intellect of others and a tendency to compare her weaknesses with the strengths of others. Therefore, she undervalues her own abilities and overestimates others' assets.

9. Defining Intelligence in a Skewed Manner. She has many myths about intelligence and what constitutes intelligence, and these usually work to her detriment.

10. False and Non-affirming Family Messages. She has received messages from her family that contradicts others' messages about her competence, and her family has, subtly or overtly, refused to recognize her specific assets (Clance & Imes, 1978; Grays, 1985).

2.6.3 Imposter Personality Traits and Gender

Pauline R Clance and Imes (1978b) The term impostor phenomenon is used to designate an internal experience of intellectual phonies, which appears to be particularly prevalent and intense among a select sample of high-achieving women. Certain early family dynamics and later introjection of societal sex-role stereotyping appear to contribute significantly to the development of the impostor phenomenon. Despite outstanding academic and professional accomplishments, women who experience the imposter phenomenon persists in believing that they are really not bright and have fooled anyone who thinks otherwise.

Numerous achievements, which one might expect to provide ample object evidence of superior intellectual, functioning, do not appear to affect the impostor belief. Therapeutic approaches found to be effective in helping women change the impostor self-concept. They describe what they refer to as "clinical symptoms" (p. 242) and list them as: "generalized anxiety, lack of self-confidence, depression, and frustration related to the inability to meet self-imposed standards of achievement" (p. 242). They draw from the work of Deaux (1976) for their understanding of attribution

theory. This initial research seemed to indicate that women (unlike men) attributed their success to luck or effort, not to their ability. September et al. (2001), examined the correlations of six component of well-being with imposter phenomenon and gender roles on 379 Canadian students. Participants completed Ryff's Scale of Psychological Well-being, Clance Imposter Phenomenon Scale, and Personal Attributes Questionnaire. Their results indicated that a higher instrumental trait is related to higher well-being, the higher imposter is related to lower well-being in self-acceptance component.

Lester and Moderski (1995) reported the association of imposter and psychological disturbance on the sample of 233 high school student. Gender and age did not show association with imposter score. They found that the imposter feeling was related to a history of prior suicidal ideation and attempts, psychoticism, neuroticism, irrational thinking, and manic and depressive tendencies as assessed with the Eysenck Personality Questionnaire. L. N. McGregor, D. E. Gee, and K. E. Posey (2008) examined the relationship of IP and depression on college students. Their result indicated the positive correlation between IP and depression, woman score higher than men did in term of IP. Are the negative thought patterns and self-doubt associated with the Imposter Phenomenon similar to the negative thought patterns and self-doubt that many individuals who have mild depression experience? If so, it is reasonable to believe that a relation between depression and the Imposter Phenomenon (IP) exists. The relation between the IP and depression among college students was examined. Results of a Pearson product-moment correlation yielded a positive correlation between the IP and BDI-II scores. Additionally, a Multivariate Analysis of Variance (MANOVA) using the IP scores and BDI scores as the dependent variables, with sex serving as the independent variable, revealed that men and women differ significantly on the

combined dependent variables of IP and BDI scores. More specifically, the main effect between sex and IP score indicates that women have higher IP scores man men. However, the effect between sex and BDI was not statistically significant. Lastly, the implications of these findings are discussed.

Jöstl, Bergsmann, Lüftenegger, Schober, and Spiel (2012) examined the relationships between imposter phenomenon and self-efficacy on a sample of 631 Austrian Ph.D. students in German-speaking countries. Prevalence of imposter feeling was almost high among students. An imposter feeling was higher whereas self-efficacy was lower in women doctoral students than men. Furthermore, the impostor phenomenon and research self-efficacy are associated with faculty membership. The most important finding is that the impostor phenomenon is negatively related to research self-efficacy. Research self-efficacy is an important indicator for successful university careers; hence, the impostor phenomenon was shown to be a psychological barrier for female university careers. Implications for support programs for female doctoral students are discussed.

2.6.4 Imposter Personality Trait and Nationality/ Cultures

Cokley, McClain, Enciso, and Martinez (2013), founded that minority status stress and impostor feelings were predictors of mental health. Impostor feelings were stronger predictors of mental health than minority status stress. They examined differences in minority status stress, impostor feelings, and mental health in a sample of 240 ethnic minority college students. African Americans reported higher minority status stress than Asian Americans and Latino/an Americans whereas; Asian Americans reported higher impostor feelings. Ross (2003) examined the relationship of imposter

phenomenon and personality pathology by DSM-III-R on the sample of 177 DePauw University undergraduate students. Participants completed the Harvey Imposter Phenomenon Scale (HIP) and Schedule for maladaptive and adaptive Personality (SNAP). The result indicated a positive relationship between IP and Neuroticism and Extraversion.

2.6.5 Imposter Personality and FFM

Chae, Piedmont, Estadt, and Wicks (1995) studied the association of imposter phenomenon (IP) with Big Five personality dimensions on 654 Korean samples from a normal population of 4 major cities in Korea. Participant completed Clance Imposter Phenomenon Scale (CIPS), Myers-Briggs Type Indicator (MBTI), and NEO Inventory (NEO-FI-R). Their result indicated the correlation between imposters and introverted type of personality on MBTI Inventory. The result of NEO revealed negative correlations between imposters and high level of neuroticism, and low level of conscientiousness, extroversion, and agreeableness. Bernard, Dollinger, and Ramaniah (2002) studied the relationships of Big Five personality dimension with imposter phenomenon among 190 (79 males and 111 females) college students. Participants completed the measures of Clance Imposter Phenomenon Scale (Clance, 1985), the NEO-PI-R, and the Perceived Fraudulence Scale. Their result indicated that high neuroticism and low conscientiousness were the predictors of imposter feelings. Furthermore, Depression, anxiety, perceived competence, and self-discipline were to found be correlated with imposter feelings.

2.6.6 Imposter Personality Traits and Mental Health

The term impostor phenomenon used to describe an internal experience of intellectual phonies, which appears to be particularly prevalent and intense among a select sample of high-achieving women. Certain early family dynamics and later introjection of societal sex-role stereotyping appear to contribute significantly to the development of the impostor phenomenon. Despite outstanding academic and professional accomplishments, women who experience the imposter phenomenon persists in believing that they are really not bright and have fooled anyone who thinks otherwise. Numerous achievements, which one might expect to provide ample object evidence of superior intellectual, functioning, do not appear to affect the impostor belief (Pauline R Clance & Imes, 1978b). Most Impostors are able to fulfill their academic or work requirements despite their self-perceived fraudulence. It is possible that subclinical symptoms resulting from impostor fears can, if prolonged, lead to clinical levels of depression or anxiety. A greater understanding of the factors contributing to impostors and its consequences may lead to effective interventions that reduce psychological distress. (Sakulku, 2011)

(Ives, 2010) investigated the IP and anxiety and their interrelationships. Findings from this research study indicated that students who feel they are imposters might not be achieving to their full potential and capability. Implications for social change include useful knowledge for educators and administrators who can design orientation programs to reduce IP and anxiety, which could potentially lead to both increased retention and completion rates, and ensure student success. Sonnak and Towell (2001) investigated the relationships of parental rearing style, parental background, self-esteem, mental health with imposter phenomenon on a sample of 107 undergraduate students.

Participants completed Clance IP Scale (imposter phenomenon), Parental Bonding Instrument (parental rearing style), Rosenberg Self-esteem Scale (self-esteem), General Health Questionnaire 12 (mental health), student demographic and parental background information, and academic outcomes. Regression analysis indicated that parental control and low self-esteem are the significant predictors of an imposter, whereas parental care, parental education and occupation level, subject's demographic information and mental health are not the significant predictors of an imposter. Moreover, posthoc regression analysis revealed that lower parental care and poor mental health are positively associated with high level of an imposter. In addition, they concluded that participants who diagnosed as imposters have reported poorer mental health in compare with non-imposters. They have concluded that imposters are suffering from low mental health. High score in IP is experiencing higher levels of anxiety, fear, doubt, and psychosomatic symptoms. Moreover, they are more introverted, sensitive to evaluation, and fear of failure. Henning, Ey, and Shaw (1998) investigated about psychopathology, perfectionism, and imposter feeling on 477 medicine student. .Perfectionism and imposter phenomenon are set of personality traits that are at risk of high anxiety and depression. Imposter phenomenon refers to high achieving individuals who consistently doubt their ability and success and afraid of being discovered by phoniness and fraud. Their result revealed that 27.5 percentages of students were experiencing a high level of psychological distress. Moreover, Psychological distress, perfectionism, and imposter feelings were reported to be strongly associated.

Kumar and Jagacinski (2006) investigated the relationship of imposter and achievement goals on 135 college students. Participants completed the Clance Phenomenon Scale and relevant achievement goal measures. Both imposter fears and ability-avoid achievement goals were positively related to test anxiety and negatively

related to confidence in one's intelligence. Women expressed greater imposter fears than men and were also higher on ability-avoid goals. Using hierarchical regression, we examined the pattern of achievement goals that related to imposter fears for men and women. Among men, imposter fears were primarily associated with ability-avoid goals. In contrast, among women, imposter fears were positively related to ability-approach goals and negatively related to task goals. Further, among women, but not men, endorsement of an entity theory of intelligence was associated with imposter fears.

Cromwell et al. (1990) investigated the IP among 104 honored high school students. They found out that around 20 % of student shown a high level of IP. The Impostor Phenomenon (IP) has been identified as a contributor to distress in some high-achieving individuals. In spite of evidence to the contrary, these individuals do not accept their abilities and achievements but believe that the approval and recognition they receive are a fluke and undeserved. Thus, they agonize and fear to the point where they manifest clinical symptoms. This study determined if the IP was manifested in 104 honors English high school students. Results show that the IP was present in 21 School students (impostors) and absent in 83 School students (nonimpostors). Discriminant analysis on the Adjective Checklist (ACL) and Irrational Beliefs tests showed that 75% of the School students were correctly classified on the basis of personality characteristics. Regression analysis showed that the Adapted Child scale on the ACL accounted for 29% of the variance.

Ross et al. (2001), investigated the associations of imposter phenomenon, Big Five personality traits, and achievement disposition on 129 college students. Their result indicated that imposter is related to all aspects of achievement. Neuroticism was positively associated with an imposter while extroversion and conscientiousness were

negatively associated with an imposter. In multiple regressions, they found that neuroticism is a significant predictor of imposter score. Finally, they reported that depression and self-consciousness were a significant predictors of neuroticism.

Bernard et al. (2002) studied the relationships of Big Five personality dimension with imposter phenomenon among 190 (79 males and 111 females) college students. Participants completed the measures of Clance Imposter Phenomenon Scale, the NEO-PI-R, and the Perceived Fraudulence Scale. Their result indicated that high neuroticism and low conscientiousness were the predictors of imposter feelings. Furthermore, Depression, anxiety, perceived competence, and self-discipline were to found be correlated with imposter feelings.

2.7 Machiavellian Personality Traits

Early in the 16th century, Niccolo Machiavelli acted as chief political advisor to the ruling Medici family in Florence, Italy. The details of his counsel are well known because Machiavelli laid them out for posterity in his 1513 book, The Prince. The gist of his advice for maintaining political control is captured in the phrase "the end justifies the means." According to Machiavelli, a ruler with a clear agenda should be open to any and all effective tactics, including manipulative interpersonal strategies such as flattery and lying. Richard Christie noticed that Machiavelli's political strategies had parallels in people's everyday social behaviour. Christie and his colleagues at Columbia University identified a corresponding personality syndrome, which they dubbed Machiavellianism. The label was chosen to capture a duplicitous interpersonal style assumed to emerge from a broader network of cynical beliefs and pragmatic morality. Christie applied his psychometric expertise to develop a series of questionnaires designed to tap individual

differences in Machiavellianism. Those questionnaires, along with the research supporting their construct validity, were presented in Christie and Geis's (2013) book, Studies in Machiavellianism. Of these measures, by far the most popular has been the Mach IV. Used in more than 2,000 cited studies, the scale has proved valuable in studying manipulative tendencies among student, community, and worker samples. The follow-up version, Mach V, was designed as an improvement but, in the end, raised more problems than it solved.

2.7.1 History and Characteristics of Machiavellian

Social psychologist Richard Christie (1970) was the first to examine the personality construct of Machiavellianism. The construct grew from his interest in the unique personality characteristics of individuals who successfully apply manipulative tactics to acquire political prominence or other forms of social power. Since the use of such power tactics has a historical association with the sixteenth-century Florentine philosopher Niccoló Machiavelli, who wrote on the subject in several classic works, the construct came to be named in his honor. The Machiavellianism literature has accrued a substantial body of research to confirm and support the original conceptualization of the construct (R Christie & F Geis, 1970; Ickes, Reidhead, & Patterson, 1986). This behavioural data reveals a clearer picture of the social, behavioural, and personality dimensions of Machiavellianism. Based on the working with colleagues in the political sciences, Christie conceptualized the Machiavellian individual as having the following personality characteristics.

The relative lack of affect in interpersonal relationships: Since the Machiavellian individual frequently seeks to manipulate others for his or her own gain,

genuine empathy and emotional attachment are not necessary for, and may be counterproductive to, the achievement of these goals. Interpersonal relationships for the Machiavellian individual are focused more upon their usefulness for achieving self-interested goals like power or social advancement, and less focused upon intrinsic rewards such as intimacy or emotional expression. The Machiavellian individual may appear to be engaged in relationships with others, but this is often only a superficial act designed to achieve a more tangible goal (Christie, 1970).

Lack of concern with conventional morality: Machiavellian individuals take a pragmatic view of morality and do not base their behaviour on abstract notions of right and wrong. Commonly accepted moral and social values are disregarded when they prohibit actions seen as necessary for goal attainment. Instead, Machiavellian individuals take effectiveness in producing desired results as the standard of value when judging the proper course of action to take in a given situation (Christie, 1970).

Low ideological commitment: Machiavellians act in a utilitarian, self-interested manner. In order to preserve the greatest number of options for personal advancement, the Machiavellian individual does not tend to limit themselves with a lasting commitment to a particular group, government, or system of belief. Although a Machiavellian may outwardly profess belief in a certain ideology, he or she will maintain the capacity to separate ideological behaviours and goals from personal ones and will choose the personal over the ideological when the two diverge (Christie, 1970).

Self-focused orientation: Ickes et al. (1986) videotaped pairs of participants in an unstructured interaction and used independent raters totally personal pronoun usage in their conversations. They discovered that Machiavellianism was positively associated with increased usage of self-focused first-person pronouns and decreased usage of

other-focused second and third-person singular pronouns in conversation. From these results, the researchers concluded that Machiavellians in social interactions tend to direct attention and interest toward the self, rather than towards partners. This finding is in line with Christie's (1970) conceptualization of the Machiavellian as primarily committed to personal goals and interests.

Attitude towards social norms: Geis (1970) had subjects participate in a board-game activity in which three players competed to be the first to get their token to the end of a series of spaces. The players in the game were permitted to form coalitions with one another, which could be entered into, and broken at will. While in a coalition, two members played as a pair and could advance their tokens further during each turn. However, if the coalition was still intact when the participants reached the final space, the members were required to split the "points" awarded as a prize. Geis found that individuals who scored highly on a measure of Machiavellianism (referred to as higher-Machs) achieved disproportionate success in the game by forming coalitions and manipulating them to personal advantage. Geis noted that players often made offers of a coalition to others on the condition that the other player promises not to break the coalition.

In every instance when a higher-Mach player required this promise of a partner, the higher-Mach went on to later break the coalition. By contrast, none of the lower-Mach players who required partners to promise not to break the coalition went on to break it themselves. From this, Geis (1970) concluded that lower-Machs assume that unspoken social norms of reciprocity imply that a promise obligates the person who requests it as well as the person who assents; while higher-Machs treat unspoken assumptions as nonbinding and use them as a loophole to gain strategic advantage.

Use of social influence: varieties of experimental tasks have shown Machiavellianism to be associated with the effective use of social influence. Higher Machs have been shown to perform better than lower Machs in tasks such as: convincing others to support controversial political "bills" in a game based on legislative negotiation (Geis, Wenheimer, & Berger, 1970), bargaining for a sum of money (Christie & Geis, 1970), creating alliances to win a board game (Geis, 1970), maintaining eye contact while lying (Exline, Thibaut, Hickey, & Gumpert, 1970), and covertly distracting and confusing others while administering an activity (Geis, Christie, & Nelson, 1970). The Machiavellianism literature presents a compelling pattern of results to support the idea that higher Machs understand the dynamics of social influence and use this knowledge to their advantage.

Correlations with intelligence and success: In a review of the Machiavellian literature, Wilson, Near, and Miller (1996) noted that nine studies have been performed attempting to relate Machiavellianism to various measures of intelligence, and all have failed to find a correlation. The authors describe the lack of connection between Machiavellianism and intelligence as being one of the most consistent findings in the Machiavellianism literature. The authors go on to find a similar lack of empirical support across various studies for the notion that Machiavellians attain more occupational success, noting that the only job-related outcome that the construct seems to consistently predict is lower job satisfaction in a variety of occupations, such as stockbroker and real estate agent.

In a study of Machiavellianism, intelligence, and social mobility, Touhey (1973) replicated findings that Machiavellianism is uncorrelated with intelligence and social success. However, he found additional evidence suggesting that Machiavellianism may serve

as a moderator between social mobility and intelligence as measured by IQ score. Specifically, subjects with high IQ scores and high Mach scores were found to have greater upward mobility in terms of socioeconomic status relative to the previous generation than those with high IQs and low Mach scores. For low IQ subjects, however, higher Mach scores were associated with lower social mobility in comparison to low Mach scores. The author interpreted these results as suggesting that the social advantages that one may gain from Machiavellianism are highly dependent on intelligence.

2.7.2 Machiavellian Personality Traits and Gender

Richmond (2001) studied about ethical dilemmas among 68 undergraduate accounting students. Participants completed the measure of Mach IV scale to measure moral behaviour and Defining Issues Test to measure accounting students' ethical reasoning processes. Sixty-eight undergraduate accounting students were participated to examine three hypotheses. Literature suggests that individuals with lower ethical reasoning levels are more likely to agree with unethical behaviour. Therefore, hypothesis one investigated the relationship between ethical reasoning and ethical decision-making. Literature also suggests that individuals agreeing with Machiavellian statements are more likely to agree with questionable activities. Hypothesis 2 investigated the relationship between Machiavellian behaviour and ethical decision-making. Prior gender literature suggests that gender influences ethical decision making, with females being more ethical than males. Therefore, hypothesis three examined whether female accounting students agree less with questionable activities compared to males. Results indicate that ethical reasoning is significantly correlated with students' ethical ratings on the business vignettes. Similarly, the Machiavellian behaviour is

significantly correlated with students' ethical ratings. Consistent with prior gender literature, females agree less with questionable activities compared to male accounting students.

2.7.3 Machiavellian Personality Traits and Big Five

Paulhus and Williams (2002) studied on three non-pathological personalities (Dark Triad personalities) included Machiavellianism, subclinical narcissism, and subclinical psychopathy in a sample of 245 undergraduate psychology students which 65% were female. They examined Big Five personality dimension together with other personality characteristics. For that, participants were asked to fill up inventory packages included Mach-IV inventory (Machiavellian trend), SRP III (subclinical Psychopathy), NPI (narcissism), and BFI (Big five inventory which has 44 item questionnaire designed to measure extroversion, agreeableness, conscientiousness, neuroticism, and openness). Male scored significantly higher on all three personality types. Agreeableness showed correlations with narcissism, Machiavellianism, and psychopathy. Machiavellians and psychopaths had a low score on conscientiousness.

Philip A. Vernon a and Leanne C. Vickers a (2007) studied the relationship of behavioural genetic of three Dark Triad (narcissism, Machiavellianism, and psychopathy) and Big 5 personality on 278 adult twins. Participant completed measures of Dark Triad Mach-IV inventory (Machiavellian trend), SRP III (subclinical Psychopathy), NPI (narcissism) and big five (NEO-PI-R). Their result showed that Machiavellianism correlates negatively with agreeableness and conscientiousness and positively correlated with neuroticism.

Austin, Farrelly, Black, and Moore (2007) examined the associations between Machiavellianism (Mach) and emotional manipulation with personality dimensions on the samples of 199 Edinburg University's students. They found, that Mach is negatively correlated with agreeableness and conscientiousness, but positively correlated with emotional manipulation. The strongest associations between Mach and personality are negative correlations with Agreeableness and Conscientiousness. Jakobwitz and Egan (2006), investigated the Dark Triad personality traits on the sample of 82 individual from a general population with snowball sampling system. Subjects completed NEO-FFI-R, MACH-IV, LSRP, and NPI inventories. Researchers measured the relationship between dark triad and Big Five personality dimensions. Their result indicated that Machiavellianism is associated with a moderate level of neuroticism, and low levels of conscientiousness.

Lee and Ashton (2005), investigated the associations of dark triad personality traits with Five Factor model of personality and HEXACO model of personality structure on 164 undergraduate students. Their result showed the negative correlation between dark triad and an honesty-humility factor of HEXACO personality structure and moderate negative correlations between Big Five Agreeableness and Machiavellianism.

2.7.4 Machiavellian Personality Traits and Mental Health

Nigro and Galli (1985) investigated the associations of Machiavellian and personality. One hundred and thirty Italian undergraduates' students responded to the Italian version of Christ Mach IV scale and the Italian version of Trait Anxiety Inventory. A positive correlation between Mach score and both states of anxiety and trait anxiety were found in both sexes. They hypothesized that moderate anxiety may be

associated with high Machiavellian. O'Boyle et al. (2012) reviewed studies of the Dark Triad (DT) personality traits and meta-analytically examined their implications for job performance and counterproductive work behavior (CWB). Relations among the DT traits and behaviors were extracted from original reports published between 1951 and 2011 of 245 independent samples (N = 43,907). We found that reductions in the quality of job performance were consistently associated with increases in Machiavellianism and psychopathy and that CWB was associated with increases in all 3 components of the DT, but that these associations were moderated by such contextual factors as authority and culture. Multivariate analyses demonstrated that the DT explains moderate amounts of the variance in counterproductivity, but not job performance. The results showed that the 3 traits are positively related to one another but are sufficiently distinctive to warrant theoretical and empirical partitioning. Jonason and Tost (2010) investigated the Dark Triad personality traits within life history theory. Participants were two hundred and fifty-nine psychology students. This result indicated that Psychopathy and Machiavellianism are associated with low self-control, a tendency to discount future consequences, and attention deficit disorder which are characteristic of impulsivity. Beverly Fehr, Samsom, and Paulhus (1992) reviewed the literature on Machiavellianism from 1971 to 1987 and they found that Machiavellianism was consistently associated with anxiety. Nigro and Galli (1985) reported that Machiavellianism was positively associated with both trait and state anxiety, which suggests that these individuals are not only inherently more anxious but are also more likely to experience anxiety when presented with psychologically stressful situations.

John W McHoskey (1999) reported that Machiavellianism was negatively associated with self-reports of subjective well-being.Latorre and McLeoad (1978) found no clear link between Machiavellianism and depression. Together, these findings

suggest that Machiavellians can be generally psychologically stable individuals who nevertheless may be dissatisfied with their accomplishments, prone to high anxiety, and oftentimes disconnected from their emotions in ways that greatly compromise their overall well-being. Skinner (1982) demonstrated that Machiavellians do not significantly differ from non-Machiavellians in their level of neuroticism, psychoticism, or occupational, home, health, and emotional adjustment. (Austin et al. (2007); Dahling, Whitaker, and Levy (2009); Jones and Paulhus (2009)) also indicates a negative relationship between Machiavellianism and self-esteem, which may be related to research showing that Machiavellianism is distinct from other traits such as emotional intelligence, cognitive, and social skills. McHoskey (1999) examined self-report relations between Machiavellianism and measures related to adjustment, well-being, and ethical orientations. Their result indicated that Machiavellian is inversely associated with self-esteem, subjective well-being, and hope but positively associated with powerlessness and nihilism.

2.8 Structural Equation Modelling (SEM)

Structural equation modeling (SEM), also known as path analysis with latent variables, is now a regularly used method for representing dependency (arguably causal) relations in multivariate data in the behavioural and social sciences (Tomarken & Waller, 2005). In many instances, researchers are interested in variables that cannot be directly observed, such as achievement, intelligence, or beliefs. In research methodology, authors use terms such as latent variables or factors to describe unobserved variables. They attempt to gain information about latent factors through observable variables. Factor analysis (exploratory and confirmatory) and structural equation modeling (SEM) are statistical techniques that one can use to reduce the

number of observed variables into a smaller number of latent variables by examining the covariation among the observed variables (Schreiber, Nora, Stage, Barlow, & King, 2006).

SEM has been described as a combination of exploratory factor analysis and multiple regression (Ullman & Bentler, 2003). It used to think of SEM as CFA and multiple regressions because SEM is more of a confirmatory technique, but it also can be used for exploratory purposes. SEM, in comparison with CFA, extends the possibility of relationships among the latent variables and encompasses two components: (a) a measurement model (essentially the CFA) and (b) a structural model. SEM, in comparison with CFA, extends the possibility of relationships among the latent variables and encompasses two components: (a) a measurement model (essentially the CFA) and (b) a structural model. In addition to the new terms, measurement and structural, two other terms are associated with SEM: exogenous, similar to independent variables and endogenous, similar to dependent or outcome variables. The measurement model of SEM is the CFA and depicts the pattern of observed variables for those latent constructs in the hypothesized model. A major component of a CFA is the test of the reliability of the observed variables. Exogenous and endogenous variables can be observed or unobserved, depending on the model being tested. Within the context of structural modelling, exogenous variables represent those constructs that exert an influence on other constructs under study and are not influenced by other factors in the quantitative model. Those constructs identified as endogenous are affected by exogenous and other endogenous variables in the model.

The measurement model of SEM is the CFA and depicts the pattern of observed variables for those latent constructs in the hypothesized model. A major component of a

CFA is the test of the reliability of the observed variables. Moreover, researchers also use the measurement model to examine the extent of interrelationships and covariation (or lack thereof) among the latent constructs. In sum, SEM allows researchers to test theoretical propositions regarding how constructs are theoretically linked and the directionality of significant relationships. In general, the authors prefer the TLI, CFI, and RMSEA for one-time analyses. When modifications are made to the model after an initial analysis or multiple models are tested, one should use different indexes that are discussed in the following paragraphs.

2.8.1 Measurement Model of the NEO-FFI

In an investigation conducted by Gignac, Bates, and Jang (2007) NEO-FFI was evaluated in three stages analyses process. First, each of the five dimensions of the five dimensions of the NEO-FFI was modeled, individually, as single-factor models. Next, within each single-factor model, correlated residuals were added to the model successively, based on the modification indices (i.e., Lagrange multiplier), until both the TLI and CFI for each dimension tested individually achieved an approximate value of .950 which is considered to be an indication of adequate model fit. Finally, for the purposes of evaluating the replicability of the correlated errors, the models identified within the satisfactory-fitting conditions (sample one) were re-test. A correlated residual was considered replicated if it was observed to be statistically significant and in the same direction within both sample solutions. Further, theme an absolute difference between the respective residuals was also calculated. All models were identified/scaled by constraining the latent variable variance to 1.0 and tested via AMOS 5.0. (Chamorro-Premuzic, Swami, Furnham, & Maakip, 2009) SEM via AMOS 4.0was used to test the overall fit and specific parameters specified in the hypothesized model. This model

included the Big Five traits as exogenous variables, enabling Neuroticism to correlate with Extraversion, Extraversion to correlate with Openness to Experience, and Agreeableness, Conscientiousness, and Neuroticism to correlate with each other.

2.8.2 Measurement Model of the Imposter Phenomenon

The CIPS (Pauline Rose Clance, 1985) was used to measure the level of imposter feelings. The CIPS is a 20-item, self-report instrument that measures fear of evaluation, feeling less capable than peers, fear that success cannot be repeated, feelings of inadequacy, and self-monitoring behaviours. CIPS items are anchored with a Likert scale with a 1 (not at all true) to 5 (very true) response ranges. Items on the CIPS include: "I can give the impression that I'm more competent than I really am," and "At times, I feel my success has been due to some kind of luck." Factor analysis of the CIPS resulted in three factors: Fake, Discount, and Luck (Chrisman, Pieper, Clance, Holland, & Glickauf-Hughes, 1995). The first factor, Fake, included items related to self-doubt and concerns about intellect and abilities. Discount included items related to fear of evaluation and difficulty accepting success. Luck, the third factor, included items related to beliefs that successful performances were due to chance or erroneous evaluation. Fake accounted for the greatest percentage of variance in the CIPS (38.5%) while Discount accounted for 9.2% of variance and Luck accounted for 7.2%. Chrisman et al. (1995) reported that the results of the factor analysis were consistent with those found in an unpublished study by Kertay, Clance, and Holland (1991) providing preliminary support for the construct validity of the CIPS by validating its stable structure. French, Ullrich-French, and Follman (2008) conducted a confirmatory factor analysis and found that responses that loaded onto the Fake and Discount subscales were correlated. A two-factor model that combined Fake and Discount had a

comparable fit to the three-factor model. They noted that the three-factor model fits the data well and called it "theoretically preferred" (p. 1274). French et al. considered the two-factor model, described as one factor made up of Fake and Discount combined and a second factor made up of Luck, most parsimonious.

2.8.3 Measurement Model of the Mach IV

The development of instruments to measure Machiavellianism by the original author went through several phases (Richard Christie & F Geis, 1970) ending in two different versions of the Mach scale. The Mach IV is made up of 20 items, from an original pool of 71. These items were selected by counterbalancing the wording of the items, content variety, and discriminatory power From These 20 items, 10 related to Machiavellianism and the other 10 to non-Machiavellianism. When the Mach IV was developed, it was classified the items into the above-mentioned three categories: Interpersonal Tactics, Cynical View of Human Nature, and Disregard for Conventional Morality. The last category has the fewest items because "Machiavelli was less concerned with abstractions and ethical judgments than with pragmatic advice" (Christie, 197Gb, p. 14). Actually, the Mach IV scale has only two items in this category and one of them (item 19) has been dropped in studies because of poor psychometric properties.

In consequence, several studies show Disregard for Conventional Morality as the least reliable subscale of the Mach IV, with the most complex factor loadings. The other two factors, Tactics and Views, are generally supported by various studies, although this is masked by the tendency of positively and negatively worded items to load on separate factors (Ahmed & Stewart, 1981; Hunter, Gerbing, & Boster, 1982).

Beverley Fehr and Samsom (2013), after carrying out a comprehensive review of the literature, recommended using the Mach IV scale and scoring the subfactors (Tactics and Cynicism) (Beverley Fehr & Samsom, 2013) separately. Corzine (1997) revised several studies on the dimensionality of the Mach IV and concluded that the different factor structures found in the literature indicate that further investigation of measurement issues in Machiavellianism is warranted.

Calvete and Corral (2000), evaluated the Mach IV confirmatory factor analysis within the context of Spanish sample. The Machiavellianism as a four-factor structure is consisting of Positive Interpersonal Tactics, Negative Interpersonal Tactics, Positive View of Human Nature, and Cynical View of Human Nature. In all the models, the factor loading matrix was full and fixed (LX). Each item had a nonzero loading on the latent variable that it was designed to measure, and zero loading on the other factors. The factor correlation matrix (PH) was symmetrical, with all coefficients freely estimated, thereby indicating that the factors were correlated. The error variance-covariance matrix (TD) was symmetrical, with diagonal elements free and off-diagonal elements fixed at zero. The measurement model specifies the pattern by which each item loads on a particular factor.

The regression coefficient represents the magnitude of expected change in the items for every change in the related latent factor. The Theta-Delta coefficient represents the random measurement error. AII the Lambda-X coefficients were statistically different from zero (t-value >±1.96) both in the total sample and in the female sample. The alpha coefficient for the Mach IV scale was .70, with the following values for the subscales: .50, .53, .62, and .40for Positive View of Human Nature,

Cynical View of Human Nature, and Positive Interpersonal Tactics, and Negative Interpersonal Tactics, respectively.

2.8.4 Measurement Model of the GHQ-28

General health questionnaire (D. Goldberg, 1978) was developed as a self-administered screening instrument to diagnose early psychological distress in primary care settings. The GHQ-28 has been widely used for other purposes, such as measuring the change in symptomatology over time (Ormel, Koeter, Brink, & Giel, 1989). The GHQ-28 comprises 28 items that form four subscales, namely, Somatic Symptoms, Anxiety and Insomnia, Social Dysfunction, and Severe Depression (D. P. Goldberg & Hillier, 1979).

The GHQ-28 shows comparable indices of validity and discriminative power, accompanied by the advantage of being shorter and easy to fill out (Lobo, Pérez-Echeverría, & Artal, 1986) than longer versions. Although the GHQ was developed in the in English, there have been many applications and translations into other languages. Various studies have sought evidence of reliability and measurement validity of the GHQ, most of which confirmed the GHQ-28 as a reliable and valid measure of psychological distress within various cultural contexts (Kalliath, O'Driscoll, & Brough, 2004). Most research on the factorial structure of the GHQ-28 in other national samples has confirmed the original four-factor solution with the Severe Depression and Social Dysfunction subscales showing the greatest stability (Werneke, Goldberg, Yalcin, & Üstün, 2000).

Kock, Görgens-Ekermans, and Dhladhla (2014) investigated the psychometric properties and factor structure of the GHQ-28 within a nonclinical African sample of adults employed in the South African military. The factor structures of the GHQ-28 were examined with confirmatory factor analysis (CFA) via LISREL 8.8 (Joreskog & Sorbom, 2004). Earlier models were suggested a four-factor model (D. P. Goldberg & Hillier, 1979). The authors utilized a split-sample approach and used the results of the single-group CFAs to determine the best-fitting baseline model for conducting cross-validation. Cross-validation measurement invariance tests were conducted with multi-group CFA (MGCFA) to provide a second confirmation of the model with the best generalization potential (Hair, 2010).

The following series of tests were conducted with MGCFA: loose cross-validation (single-group CFAs on both samples), factor structure equivalence, metric invariance, scalar invariance, error variance invariance (Vandenberg & Lance, 2000), and full/complete invariance. The model exhibited very good fit based on the root mean square error of approximation (RMSEA), Nonnormed Fit Index (NNFI), Comparative Fit Index (CFI), and standardized root mean residual (SRMR) values. The cut-off criteria were liberally exceeded (i.e. RMSEA < .07, CFI/NNFI > .92, SRMR< .08).

2.9 Chapter Summary

Student mental health issues and the outcome of poor mental health have been reviewed by studying previous reports outcome. It was concluded that student's mental health issues are in continues increment in the past two decades. Moreover, the severe mental health issues could result in undesirable consequences for student life. These consequences are varying according to the mental health state ranging from poor

academic achievements to commit a crime. Therefore, student's mental health evaluation must be given a high consecration from the educational authorities as well as from the researchers who work in this field.

On the other hand, the correlation of mental health with different personality traits have been reviewed. A large connection between personality and mental health has been reported. However, there was no effort to employ this connection to develop a single tool that can evaluate student mental health as well as student's personality traits. Therefore, the personality traits namely: big five, imposter and Machiavellian personality have been selected to be the main objectives of this research in an attempt to develop a new tool.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter presents the entire methodology that was followed to conduct this research. Basically, this research investigates the relationship between personality traits and mental health. The data were collected through survey method using the standardized structured self-administered questionnaires. Therefore, two essential parts have been considered prior conducting the survey. The first part was selecting an appropriate area to conduct the research. The second part was to identify the research tools for collecting the data. Thus, the methodology was designed based on these two parts. Figure 3.1 and Figure 3.2 illustrates the research methodology flow charts. The following sections will go through the research methodology in details.

3.2 Research Design

Basically, cross-sectional design was utilized to determine the stability of the mental health and its predictors. The research design is the overall plan or structure of the study. It includes an outline of what the investigator will do from writing the hypotheses and their operational implications to the final analysis of data (R. Kumar, 2010, p. 84). Initially, the quantitative and comparative approach was chosen to generalize the methodology. Therefore, the research includes comparison, prediction, and explanation of differences and relationship between International and Malaysian students.

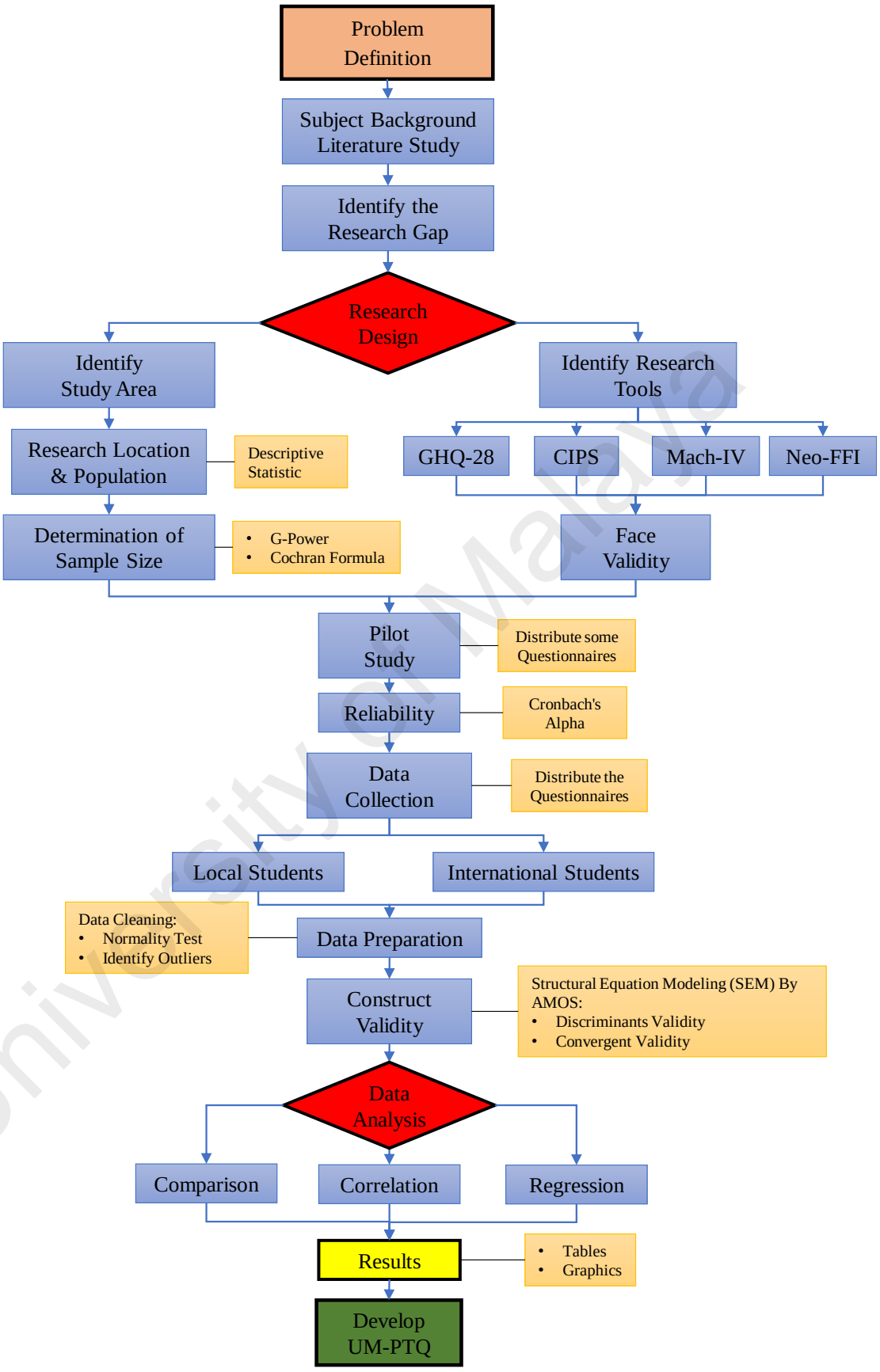

Figure 3.1: Research Methodology Flow Chart

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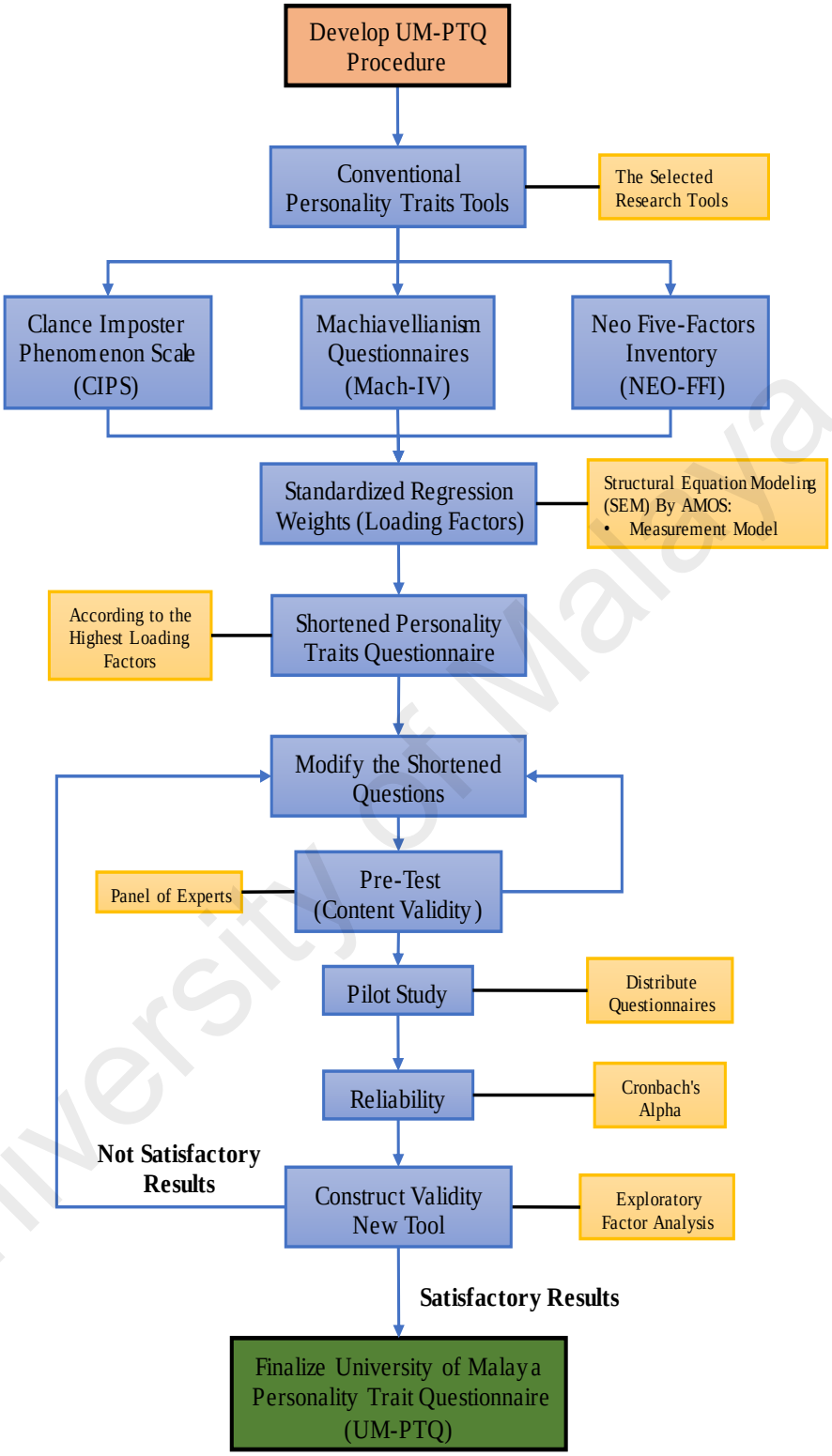

Figure 3.2: Research Developed Tool Flow Chart

Initially, the quantitative and comparative approach was chosen to generalize the methodology. The quantitative approach is more objective and independent research (Punch & Punch, 2009). Therefore, the research includes comparison, prediction, and explanation of differences and relationship between International and Malaysian students. The main variables were the personality patterns (Big Five, Imposter personality, and Machiavellian) with mental health. The demographics (age, gender, course, the level of education, marital status, religion, nationality, and ethnicity) were utilized in the comparison between International and Malaysian students.

The correlation approach was employed to investigate the relationship between variables. (Ary, Jacobs, Sorensen, & Walker, 2013) Ary, Jacobs, Razavieh, & Sorensen, (2009) stated that correlation research is useful in wide study fields. They also mentioned the most useful applications of correlation are classified as (1) Determining relationships, (2) Assessing consistency, and (3) Prediction. Correlation research methods are used to determine relationships and patterns among variables in a single group of subjects.

Subsequently, in this research, survey technique using self-administered questionnaire was adapted to gather information from participants. Survey research design is a procedure in quantitative approach that helps the researchers to administer a questionnaire in order to identify trends in the attitudes, opinion, behaviour or characteristic of the population (Hanson, Creswell, Clark, Petska, & Creswell, 2005). Accordingly, the research has been constructed based on identifying the research tools and the study area. Next sections will go through the area selection and the research tools.

3.2.1 Research Location and Population

This research was conducted at the University of Malaya, which is the oldest public research university among Malaysians' universities located in Kuala Lumpur. The University consists of 17 faculties and research centers that cover the whole spectrum of learning from the Arts, Sciences, and Humanities. The university considers the first choice of Malaysia's students as well as the international student who comes from more than 80 different countries. Therefore, it was offering an excellent environment to conduct this research.

On the other hand, the university includes a variety of population, which is highly required in this research. The population defined as the group of interest to the researcher, the group to which person would like the results of the study to be generalized (Gay & Airasian, 2003). The population also is the group of individuals having one characteristic that distinguishes them from other groups (Fowler Jr, 2013). Thus, the target population of this study was composed of all Malaysian and international students enrolled in University Malaya included both male and female, undergraduate and postgraduate students involved in various university courses. Local Student" refers to a student who has Malaysian citizenship / permanent resident status; International Student" refers to a student who does not has Malaysian citizenship / permanent resident status.

According to statistical information given by (Higher Degree of Information System of Malaya University), the University has a total of 27249 students. Include 3381 International students (Undergraduate = 643 and Postgraduate = 2738) and 23868

Local students (Undergraduate = 12440 and Postgraduate = 11428). The Pie chart in Figure 3.3 illustrates the population of interest in this research.

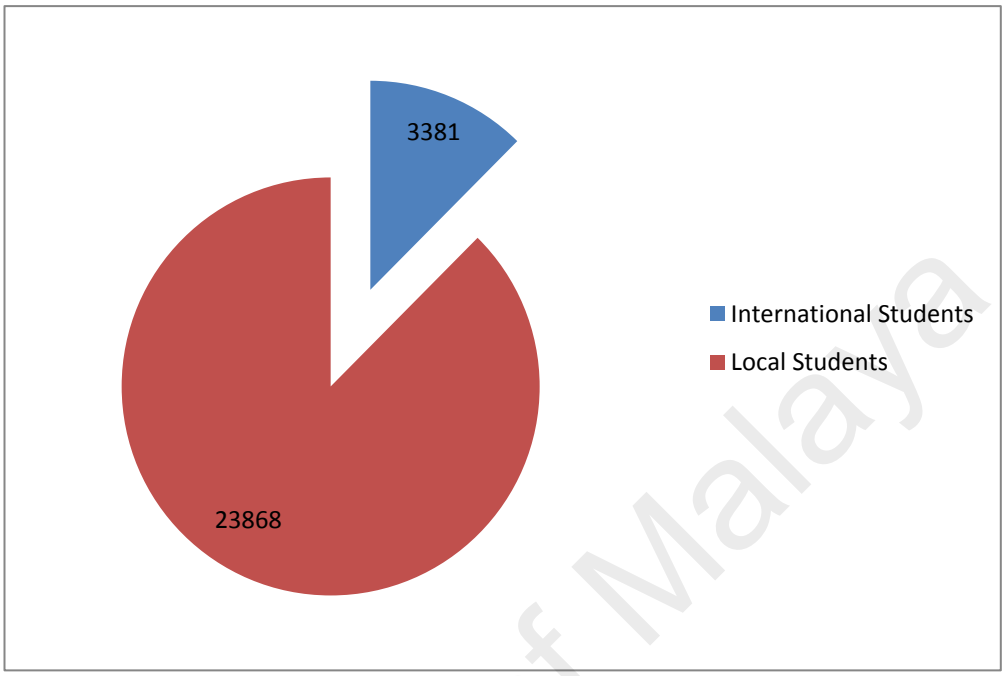

Figure 3.3: the University of Malaya Student Based on the Enrolment of 2013

3.2.2 Determination of Sample Size

According to Morse (2000), there are several approaches to determining the sample size. These include using a census for small populations, imitating a sample size of similar studies, using published tables, applying formulas, and analysis program to determine a sample size. In this research, the sample size was obtained by using two methods namely the post hoc power analysis with the program G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) and the sample size Cochran formula.

G-power analysis (a software that can be obtained through Heinrich-Heine University of Dusseldorf, its capabilities are limited to power calculations and sample size calculations) indicated that a total sample of 269 students are needed to detect

medium effects size with 80% power using a two ways ANOVA between means with alpha at 0.05 among four numbers of groups (Gender × Nationality). Further, a total sample of 82 individual would be needed to detect medium effects size with 80% power using correlation with alpha at 0.05 at two-tailed hypotheses. Moreover, a total sample of 123 individual would be needed to detect medium effects size with 80% power using Linear multiple regression with alpha at 0.05 with 11 numbers of predictors at two-tailed hypothesis. See Table 3.1. For more details, refer to Appendix I.

Table 3.1: Determination of Sample Size Based on G-Power

Statistical Method	**Effect Size**	**Total Sample Size**
2 Way Anova	0.25	269
Correlation	0.	82
Multiple Linear Regression	0.1	123

Moreover, the estimation of appropriate sample size for prevalence surveys requires an attentive choice of calculating formula (Arya, Antonisamy, & Kumar, 2012).

$$n_\circ = \frac{Z^2 p \times q}{e^2} \quad \textbf{3.1}$$

$$n_0 = \left(\frac{1.96^{\,2} * 0.5 * 0.5}{0.05^2}\right) = 384 \quad \textbf{3.2}$$

Where:

$n_\circ$ = calculated sample size

e= desired margin of error =0.05

$p \times q$= variance of hypothesized proportion= 0.5 *0.5

Z= z score of confidence level= 1.96

The required sample size would be 384 for each group of International and Local students and the final sample size for each group was adjusted based on Cochran formula (1963) the sample size can be adjusted by using the following equation:

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}} \quad \textbf{3.3}$$

Where

n: is the sample

N: is the Population size

For University of Malaya total population of 27249 samples (International students = 3381 and Local students = 23868), the sample size calculated as shown in the equation 3.4 below:

$$n = \begin{cases} \frac{n_0}{1 + \frac{(n_0 - 1)}{N}} = \frac{384}{1 + \frac{(384 - 1)}{3381}} = 372.7 & \text{International} \\ \frac{n_0}{1 + \frac{(n_0 - 1)}{N}} = \frac{384}{1 + \frac{(384 - 1)}{23868}} = 379.9 & \text{local} \end{cases} \quad \textbf{3.4}$$

According to equation 3.4, the sample size of 373 and 380 for International and local students respectively were acquired to detect a population which is covering the G-Power calculation. To account for some possible complications that may occur throughout the research, the sample size as calculated above was increased 10% so total

410 questionnaires from International students and 416 questionnaires from local students was collected at the University of Malaya. However, the last sample size after data cleaning was 352 for international and 403 for local Malaysian students. See Table 3.2.

Table 3.2: number of respondents in each group

Groups	Number & Respondent of each group	Number & Respondent of each group (after data cleaning)	Percentage (%)
Local Students	416	403	46.6
International Students	410	352	53.4
Total	826	755	

3.2.3 Research Tools

In this research, the main instrument for data collection was the questionnaire; a well-established method of collecting data in social science research (Dillman, 2007). According to the literature review and previous studies, five measurement scales have been used in this research. The socio-demographic characteristics of respondents with the measures of three personality traits (Big Five, Imposter personality traits and Machiavellian) and mental health. Table 3.3 presented the research questionnaires. Next section will go through each of them in details.

Table 3.3: Section division for the Questionnaire

Parts	Questionnaires
Par A	Respondents Personal Profile
Part B	NEO – FFI Questionnaire
Part C	Clance Imposter Phenomenon Scale (CIPS)
Part D	Mach IV
Part E	General Heath Questionnaire (28 GHQ)

3.2.3.1 Part A: Socio-Demographic Information

A portion of the survey asked the participants to provide demographic information. Demographic variables collected for this research included the participants were the age, gender, course, level of education, marital status, religion, nationality, and ethnicity.

3.2.3.2 Part B: Personality Traits

The NEO-FFI (Costa & McCrae, 1992) is a 60-item short version of the 240-item NEO-PI-R (Costa & McCrae, 1992) measuring five domains (Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness). These 60 items were selected by Costa and McCrae (1992) considering 12 items from each of the five factors with the highest pattern/structure coefficients on the principal component that represented that particular personality domain (McCrae & Costa, 2004, 2007). The final 60 items that were included in the NEO-FFI were based on additional exploratory factor analyses and examinations of internal consistency. The NEO-FFI measures personality at the domain level only. Each item consists of a statement rated on a Likert scales ranging from strongly disagree to strongly agree. Scale alpha reliabilities was reported .88 (Neuroticism), .81 (Extraversion), .74 (Openness), .77 (Agreeableness) and.87 (Conscientiousness). Many studies have been reported the reliability and validity of NEO-FFI scores, as well as the cross-cultural transportability of the items (e.g., Caruso, 2000; Church et al., 2008; Holden, Wasylkiw, Starzyk, Book, & Edwards, 2006; Hong et al., 2008; McCrae & Costa, 2007; Murray, Rawlings, Allen, & Trinder, 2003; Scandell, 2000). They found that the mean reliability coefficients were .88, .83, .79, .75, and .83 for the N, E, O, A, and C personality domains, respectively. The questions

belong to each subscale is presented in Table 3.4. Refer to Appendix E for the Full Version.

Table 3.4: Subscale Items Numbers for NEO-FFI

Subscale Name	Involved Questions
Emotional Stability (Neuroticism)	NEO1, NEO6, NEO11, NEO16, NEO21, NEO26, NEO31, NEO36, NEO41, NEO46, NEO51, and NEO56
Extroversion	NEO2, NEO7, NEO12, NEO17, NEO22, NEO27, NEO32, NEO37, NEO42, NEO47, NEO52, and NEO57
Openness to Experience	NEO3, NEO8, NEO13, NEO18, NEO23, NEO28, NEO33, NEO38, NEO43, NEO48, NEO53, and NEO58
Agreeableness	NEO4, NEO9, NEO14, NEO19, NEO24, NEO29, NEO34, NEO39, NEO44, NEO49, NEO54, and NEO59
Conscientiousness	NEO5, NEO10, NEO15, NEO20, NEO25, NEO30, NEO35, NEO40, NEO45, NEO50, NEO55, and NEO60

3.2.3.3 Part C: Imposter Traits

Clance Imposter Phenomenon Scale (CIPS) was conducted by means of “paper and pencil” for the first time by Clance and Ames (1978). It consists of 20 questions and the subjects are to choose the responses from the range 1 “never", 2 "rarely", 3 "Sometimes", 4 "often", 5 "very high". When total score is less than 40% it indicates that the Imposter syndrome is poor, between 41 and 60% - medium and between 61 and 80% - disease and 80% above is considered severe. An alpha coefficient of 94 % is reported in research findings Chrisman et al (1995). In the findings of Holmes et al (1993) alpha coefficient of 96% is reported. The split-half method involved two techniques for calculating reliability coefficients namely: Spearman-Brown and Gatman. The values of the coefficients calculated by means of Cronbach's alpha,

Spearman-Brown and Gatman 83 %, 73%, and 73% respectively. Below the questions belong to each subscale is presented in Table 3.5. Refer to Appendix F for the Full Version of Clance Imposter Phenomenon Scale CIPS.

Table 3.5: Subscale Items Numbers for CIPS

Subscale Name	Involved Questions
Fake	PI3, PI4, PI6, PI7, PI8, PI12, PI13, PI14, PI17, PI18, and PI20
Luck	PI5, PI9, PI11, and PI15
Discount	PI10, PI16, and PI19

3.2.3.4 Part D: Machiavellian Traits

For Machiavellian Traits, the Mach IV Questionnaires, which are made up of 20 items, has been used. Half of the questions are indicating for high Machiavellianism and the second half are indicating for the opposite (low Machiavellianism). The items reflect ways of thinking and opinions about people and things. Participants were requested to rate the extent to which they agreed or disagreed with the statements on a 5-point Likert ranging from strongly agree to strongly disagree.

Alpha coefficients of .70 to .76 have been reported for the Mach IV Scale by many researchers (Gable &Topol, 1987; Hunt & Chonko, 1984; Zook & Sipps, 1986). Below the questions belong to each subscale is presented in Table 3.6. Refer to Appendix G for the Full Version of Mach IV.

Table 3.6: Subscale Items Numbers for MACH-IV

Subscale Name	Involved Questions
Negative Interpersonal Tactics	Mach1, Mach3, Mach7, and Mach9
Positive Interpersonal Tactics	PI15 Mach5, Mach15, Mach10, Mach2, Mach8, and Mach13
Positive View of Human Nature	Mach14, Mach17, Mach20, and Mach12
Cynical View of Human Nature	Mach4, Mach6, Mach11, Mach19, Mach16, and Mach18

3.2.3.5 Part E: Mental Health

General Health Questionnaire (GHQ-28) was developed by Goldenberg (1978) and has been translated into 38 languages. It was developed as a screening tool to detect those likely to have or to be at risk of developing psychiatric disorder measures emotional distress in medical settings. Through factor analysis, the GHQ-28 has been divided into four subscales. These are: somatic symptoms include item 1-7; anxiety/insomnia included item 8-14; social dysfunction include item 15-21, and severe depression includes item 22-28. (Goldberg 1978). Items are accompanied by four possible responses: Not at all, No more than usual, Rather more than usual, and Much more than usual. Several scoring options are available; we used the Likert method to indicate symptom severity, which scores the item response between 0–3 (0–1–2–3, subscale range 0 to 21) as this is the recommended method for assessment of the subscales and it is less skewed distributions and is more suitable for correlation analysis and intergroup comparisons (Banks et al., 1980). The score of each item relies on whether the item is formulated positively or negatively (Richard, Lussier, Gagnon & Lamarche, 2004).Many studies investigated reliability and validity of the GHQ-28 in

various clinical populations. Test-retest reliability has been reported to be high (0.78-0.90) (Robinson and Price 1982) and interrater and interrater reliability have both shown to be excellent Cronbach's α 0.9-0.95 (Failde and Ramos 2000). Below the questions belong to each subscale is presented Table 3.7. Refer to Appendix H for the Full Version of GHQ28.

Table 3.7: Subscale Items Numbers for GHQ-28

Subscale Name	Involved Questions
Somatisation	GHQ1, GHQ2, GHQ3, GHQ4, GHQ5, GHQ6, and GHQ7
Depression	GHQ8, GHQ9, GHQ10, GHQ11, GHQ12, GHQ13, and GHQ14
Anxiety	GHQ15, GHQ16, GHQ17, GHQ18, GHQ19, GHQ20, and GHQ21
Social Dysfunction	GHQ22, GHQ23, GHQ24, GHQ25, GHQ26, GHQ27, and GHQ28

3.2.3.6 Validity of Research Instruments

In order to establish appropriated and usefulness measurement, the validity of measurement has been considered in this research. Validity was defined as the extent to which is as instrument measured what is claimed to measure (Ary et al., 2009). Although the suggested items used in measuring the dependent and independent variables were originally developed by previous researchers and reported high on its validity and reliability, it was still important to check on its appropriateness, practically and reliability for use in the location of study. Therefore, supervisory committee and experts panels were consulted to check the validity of this questionnaire. They have reviews and assessed the instruments of the study to determine their content and face validity. However, the instrument that would be used to measure the performance and its associated factors should meet the following three criteria: validity, reliability, and it should be practical (Ary et al., 2009).

3.3 Pilot Study and Reliability Test

To measure the reliability of the instrument, a pilot study was conducted among 60 students include Malaysian and international students. Next, Cronbach's Alpha was employed to measure the reliability of the questionnaire. Cronbach's alpha is the most common measure of internal consistency, if alpha is higher than 0.70, then this suggest that all of the items are reliable and the entire test is internally consistent. Further, Corrected Item-Total Correlation is the correlations between each item and the total score from the questionnaire.

The reliability of the instrument is defined as the degree of consistency to whatever it measures (Ary et al., 2009). In the other words, reliability is inferred when an instrument consistently produces the same reading or values for the same observations every time they are made. The distributions of questionnaire scores must be same on different occasions of testing. Reliability is normally measured using correlations and, therefore, expressed as a decimal in the range 0.00-1.00 (D.F. Marks & L. Yardley, 2004). A value of alpha in the range +0.70 to 0.90 is considered good or if in the range + 0.50 to 0.70 adequate. In the current research, Cronbach's Alpha was calculated for testing the reliability. Based on the alpha values, all the variables were found greater than the standard of 0.70, thus, the variables were reliable. Table 3.8 represents Cronbach's alpha of each questionnaire that has been used in our study.

Table 3.8: Cronbach's Alpha Value of the Instruments

		N of Items	Cronbach's Alpha
Malaysia	NEO	60	0.753
	GHQ	28	0.91
	MAK	20	0.725
	IMP	20	0.801

‘Table 3.8, continued’

	NEO	60	0.972
International	GHQ	28	0.91
	MAK	20	0.925
	IMP	20	0.946

3.4 Data Collection Procedure

As mentioned previously, a self-administrated questionnaire was used to collect information. These questionnaires have been distributed randomly to the respondents. When permission was approved by the University ethic committee (refer to the Appendix L), data collection schedule has been made and researcher started collecting the data daily from 9 am to 4 pm at different faculties in Malaya University campus. Participants were provided consent form containing information includes the purpose of the study at the beginning of the questionnaires. During the distribution of the questionnaire to the respondents, they could ask questions or discuss any concerns if they had any problem in understanding the questionnaire to the researcher or to the research assistants. However, a briefing was given by the researcher and research assistants before respondents starting to fill the questionnaire. In addition, researcher addressed the procedure of data collection to respondents whenever it was necessary. It should be noted screening question was asked to identify if they were local students or international students. The researcher then proceeded to distribute the questionnaire to both groups of students. Questionnaires were collected on the same day by the researcher. Accordingly, the researcher completed all data collection on the scheduled day.

In order to achieve accurate data to represent the population of university students, some inclusion and exclusion criteria must be considered during data collection. Inclusion criteria is defined as basic characteristics must be met by the

research participants before take part in this study whereas exclusion criteria is defined as specific characteristic in the participants that are not desirable to include in the study and must be excluded from the study if any of them has found (DeRenzo & Moss, 2005). In this research, participant's enrollment at the University of Malaya is an essential criterion.

Further, individuals were eligible to participate if they were not having limited English proficiency. Since the research was conducted in the University of Malaya, this criterion was met, as the English language is the medium of study. However, research assistants were employed to assist participant if they have any inquiry. Furthermore, agreement of participation was considered as all the participants had to sign a consent form before filling the questioners. On the other hand, participants have been questioned if they were experiencing serious mental health and physical health issues, such cases have been excluded from this study.

3.5 Data Preparation

After the data collection has been done, data should be prepared for analysis. The preparation includes checking the analysis assumptions such as normality and outliers. Next subsections will go through the explanation and results of these two tests for the collected data.

3.5.1 Normality test

One from the main assumption for data analysis is the normality of distribution. In other words, Distribution of data measuring the variation of variables in the collected

data. Normality of data can be measured using the Kurtosis and Skewness test and the Kolmogorov and Shapiro method (Field, 2006; Tabachnick and Fidell, 2007; Hair et al., 2006). In this research, the normality test was done for both mean scores of subscales as well as for items. Table 3.9 represent the results of normality test for all computed mean scores for all subscales. The normality test for all indicators prior to SEM analysis was evaluated which are presented in Appendix A.

Table 3.9: Normality Test for all Research Variables Imputed Mean Score

Scale	Component	**Mean**	**SD**	**Skewness**	**SE**	**Kurtosis**	**SE**
Imposter	Discount	2.706	0.566	-0.143	0.09	0.65	0.17
	Luck	2.871	0.629	-0.228	0.08	0.54	0.17
	Fake	3.246	0.625	-0.067	0.08	0.6	0.17
	Total	2.9417	0.553	-0.072	0.089	0.738	0.178
Mental health	Social Dysfunction	1.488	0.528	-1.091	0.08	0.73	0.17
	Somatization	1.41	0.641	-0.622	0.08	-0.72	0.17
	Depression	1.106	0.736	0.218	0.08	-1.22	0.17
	Anxiety	1.515	0.693	-0.693	0.08	-0.5	0.17
	Total	1.4262	0.5329	-0.341	0.089	-0.625	0.178
Machiavellian	Positive VHN	2.416	0.3699	0.166	0.08	0.16	0.17
	Cynical VHN	2.98	0.48	0.161	0.08	0.41	0.17
	Positive IT	3.259	0.528	-0.192	0.08	-0.08	0.17
	Negative IT	2.819	0.558	-0.305	0.08	0.98	0.17
	Total	3.2785	0.445	-0.644	0.08	2.31	0.17
Personality	Neuroticism	1.9372	0.54	-0.146	0.08	0.91	0.17
	Extroversion	2.3649	0.498	-0.278	0.08	1.47	0.17
	Openness	2.3267	0.35	-0.078	0.08	0.62	0.17
	Agreeableness	2.13	0.609	-0.574	0.08	0.94	0.17
	Conscientiousness	2.4897	0.57876	-0.608	0.08	1.99	0.17

Positive View Human Nature, Cynical View Human Nature, Positive Interpersonal Tactics, Negative Interpersonal Tactics

The result indicated that the skew and kurtosis of all items and mean scores were laid between ±2 for skewness and ±2 for kurtosis respectively. Therefore, it can be concluded that the data set of all items were well modeled by a normal distribution. As

shown in the following table, for total mean scores the skewness ranged from -0.693 to 0.238 and the kurtosis ranged from -1.22 to 2.31.

3.5.2 Outliers

Usually, the univariate outliers should be identified by considering frequency distributions of Z-scores of the observed data (Kline, 2005). However, no univariate outlier was identified for this study, due to utilizing a 5 point Likert scale that ranging from 0 to 4 and 1 to 5. For imputed variables, outliers were identified using univariate (histograms, boxplots, and standardized Z score). According to Hair (1998) for large sample size, Absolut (Z) > 4 indicates an extreme observation. The result showed that the standardized (z) scores of the imputed variables ranged from –2.80 to -3.19, indicating that none of the variables exceeded this threshold (See Appendix B).

The multivariate outlier was tested by defining the Mahalanobis distance (D^2), which is a measure of distance in standard deviation units between each observation compared with the mean of all observations (Byrne 2001; Kline, 2005; Hair et al., 2006). A large D^2 shows the case as an extreme value at one or more variables. The data were examined by applying multivariate detection. High D^2 / df value greater than 3.5 represents potential multivariate outlier (Hair et al. 1998). As depicted in Table B-1 (see Appendix B), the results of Mahalanobis distance for NEO-FFI showed that the largest D^2 value is 142.955. Regarding the 60 exogenous and endogenous variables together with their relative estimation errors, the maximum D^2 / df was equal to 1.19 (142.95 / 120) which was far below the cut-off 3.5 which indicates there are no multivariate outliers for NEO-FFI scale, meaning all observations in this scale were retained for analysis.

As depicted in Table B.3 (see Appendix B), the results of Mahalanobis distance for Imposter showed that the largest D2 value is 64.999. Regarding the 20 exogenous and endogenous variables together with their relative estimation errors, the maximum D2 / df was equal to 1.6 (64.999/ 40) which was far below the cut-off 3.5 which indicates there are no multivariate outliers for Imposter Phenomenon Scale (CIPS) scale, meaning all observations in this scale were retained for analysis.

As depicted in Table B.4 (see Appendix B), the results of Mahalanobis distance for Machiavellian showed that the largest D2 value is 122.322. Regarding the 20 exogenous and endogenous variables together with their relative estimation errors, the maximum D2 / df was equal to 3.05 (122.322/ 40) which was below the cut-off 3.5 which indicates there are no multivariate outliers for Mach IV scale, meaning all observations in this scale were retained for analysis.

As depicted in Table B.2 (see Appendix B), the results of Mahalanobis distance for GHQ showed that the largest D2 value is 82.352. Regarding the 28 exogenous and endogenous variables together with their relative estimation errors, the maximum D2 / df was equal to 1.7 (82.352/ 48) which was far below the cut-off 3.5 which indicates there are no multivariate outliers for GHQ28 scale, meaning all observations in this scale were retained for analysis.

3.6 Construct validity

Construct validity is the appropriateness of inferences made on the basis of observations or measurements (often test scores), specifically whether a test measures the intended construct. Constructs are abstractions that are deliberately created by researchers in order to conceptualize the latent variable. Construct validity is essential to

the perceived overall validity of the test. It is particularly important in the social sciences, psychology, and psychometrics and language studies. Convergent and discriminant validities are both considered subcategories and subtypes of construct validity. Convergent validity occurs where measures of constructs that are expected to correlate do so and discriminant validity occur where constructs that are expected not to relate do not, such that it is possible to discriminate between these constructs. Convergence and discrimination are often demonstrated by correlation of the measures used within constructs. In this research, confirmatory factor analysis (CFA) was applied for those latent construct hypothesized model. Confirmatory factor analysis plays the role of validating (both convergent and discriminant) and also finding the reliability of research measurements.

Structural educational modelling (SEM) is a multivariate statistical approach that allows researchers to examine both the measurement and structural components of a model by testing the relationships among multiple independent and dependent constructs simultaneously (Tabachnick & Fidell, 2001). One of most usable software for analysis SEM is called Analysis of Moment Structures (AMOS). In this research, AMOS (Ver21) was used to evaluate the construct validity including convergent and discriminant validity among constructs and indicators using confirmatory factor analysis (CFA), also known as measurement model (Bentler, 1995; Hoyle, 1995, Hair et al., 2006), which are described below. CFA is the very important technique of SEM (Kline, 2005). It is generally applied when there is some background knowledge of the underlying constructs and measurement items (Byrne, 2013). There are two broad approaches used in CFA to evaluate the measurement model: (1) deciding the goodness of fit (GOF) criteria indices, (2) evaluating the validity and reliability of measurement

model (Hair et al., 2006). Therefore, the researcher used the measurement model in this research for assessing the unidimensionality, validity, and reliability of the measures.

The goodness of fit indices Structural equation modelling (SEM) has three main types of fit measure indices: absolute fit indices, incremental fit indices, and parsimonious fit indices (Hair et al., 1998). The absolute fit indices are used to assess the ability of the overall model fit and these indices include the likelihood ratio statistic chi-square ($\chi 2$), in association with root, mean square error of approximation (RMSEA), and the goodness of fit index (GFI) (Hair et al., 1998). The incremental fit indexes are used to compare the proposed model to some baseline model and the incremental fit indices consist of the normed fit index (NFI), and comparative fit index (CFI) (Hair et al., 1998; Hair et al., 2006).

The parsimonious fit indices are used to investigate whether the estimated model is simpler or can be improved by specifying fewer estimated parameter paths (Hair et al., 1998). The parsimonious fit index includes the adjusted goodness-of-fit index (AGFI). To examine the matter that a model's fit or how the model performs in explaining a set of observable data, the following indices are used: Goodness-of-Fit Index (GFI), Normed Fit Index (NFI), Increment Fit Index (IFI), and Comparative Fit Index (CFI). The high value (0.9) of the indices indicates the highly appropriate fit of the designed model compared to the possible models. In the end, to examine how the model integrates the fitness and cost-effectiveness, the highly strong index Root Mean Square Error of Approximation (RMSEA) is used. The index is, in fact, the Root Mean Square of Approximation. The model where the index is 0.10 or so has weak fit. Root Mean Square Residual (RMSR) is, in fact, the same the mean differences between data and variance-covariance matrix reproduced. The smaller the criterion is (<0.05 is

perfect and <0.08 is suitable and >0.10 is inappropriate), the better it will be for the fit between the model and data. When data variance-covariance matrix is known, the index is taken to be the valuable index (Hair, Black, Babin, & RolphE, 2006; Ho, 2006).See Table 3.10.

Table 3.10: Fit Measurement Indication

Fit Measures	**Fit Measures' Indications**
Chi-square ($\chi 2$)	A p-value greater than 0.05 indicates an acceptable fit
CMIN/DF($\chi 2$ /df) or (normed chi-square)	A value close to 1 and not exceeding 3 indicates a good fit A value less than 1 indicates an overfit of the model
RMSEA	A value about 0.05 or less indicates a close fit of the model A value of 0.0 indicates the exact fit of the model A value of about 0.08 or less indicates a reasonable error of approximation A value should not be greater than 0.1
TLI	A value between 0 and 1, but is not limited to this range; a value close to 1 indicates a very good fit. A value greater than 1 indicates an overfit of the model.
CFI	A value between 0 and 1, a value close to 1 indicates a very good fit.
NFI	A value between 0 and 1, 1 indicates a perfect fit.
GFI	A value always less than or equal to 1 and 1 indicates a perfect fit.
AGFI	A value is bounded above by 1 and is not bounded by 0 and 1 indicates a perfect fit.

3.6.1 Convergent Validity

Convergent validity is the extent to which observed variables of a particular construct share a high portion of the variance in common (Hair et al., 2006). Factor loadings of the construct, average variance extracted (AVE), and construct reliability (CR) estimation are used to assess the convergent validity of each of the constructs (Hair et al., 2006).

In addition, Hair et al. (2006) suggested that ideal standardized loading estimates should be 0.7 or higher, AVE estimation should be greater than 0.5, and reliability estimates should be above 0.7 to show adequate convergent validity. Therefore, in this study, the minimum cut off criteria for loadings > 0.7, AVE > 0.5, and reliability > 0.7 were used for assessing the convergent validity.

3.6.2 Discriminant validity

Discriminant validity refers to the extent to which a latent construct is truly distinct from other latent constructs (Hair et al., 2006). Discriminant validity was assessed by a method, suggested by Hair et al. (2006), In which the average variance extracted for each construct is compared with the corresponding squared inner construct correlations (SIC), and the AVE estimate consistently larger than the SIC estimates indicates support for the discriminant validity of the construct. This procedure was used in this research to assess the discriminant validity of each of the constructs.

3.7 Constructs Validity of research instruments

Prior to testing the research hypothesizes confirmatory factor analysis was done for evaluation of construct validity (convergent and discriminating validity) for all instruments, applying AMOS (Ver21). In this research, the measurement model was evaluated using CFA for all scales. The measurement model is related to the rules governing how the latent variables are measured in terms of the observed variables (items), and it defines the measurement properties of the observed variables. That is, measurement models are concerned with the relations between observed and latent variables. Such models specify hypotheses about the relations between a set of observed

variables, such as ratings or questionnaire items, and the unobserved variables or constructs they were designed to measure. The measurement model is important as it provides a test for the reliability of the observed variables employed to measure the latent variables. A measurement model that offers a poor fit to the data suggests that at least some of the observed indicator variables are unreliable, and precludes the researcher from moving to the analysis of the structural model.

Prior to run the measurement model, individual models for each subscale were fitted. Individual item reliability can be assessed by evaluating the individual item loadings with values greater than 0.7, which indicates adequate indicator reliability or correlation with each construct (Henseler, Ringle, & Sinkovics, 2009). However, Hair et al. (2010) further suggest the acceptable factor loading (outer loading) of 0.4 if the sample size is 200 or more. Early, the author has suggested using the newly developed scale which is 0.5 or higher should be retained in the measurement model. The results of the modified individual model were presented in Appendix C. After modifying the individual CFA model for each dimension the overall measurement model for each questionnaire were evaluated by using their total dimensions. The measurement CFA model of this study includes 128 items to measure sixteen constructs which presented by this study questionnaires. The measurement CFA model in this study included into four parts with all 128 items. The models are shown in figure 1 to 4 respectfully. Two items including IMPOSTER.1 and IMPOSTER.2 were removed from the model due to low loading factors which were lower than 0.4.

3.7.1 Construct Validity of NEO-FFI

The convergent and discriminant validity of the NEO-FFI constructs were examined with several tests. The confirmatory factor analysis (CFA) conducted by using AMOS 21 demonstrated a good model fit, supporting both convergent and discriminant validity.The measurement model obtained using AMOS showed satisfactory fit statistics (Chi-square = 3547.932, df = 1700, CFI = .914, AGFI = .837, GFI = .849, RMSEA =0.039). While an ideal RMSEA score is .05 or less, a value of about 0.08 indicates acceptable fit (Bollen & Long, 1993). See Table 3.11.

Table 3.11: Convergent Validity of NEO

	CR	AVE	MSV	ASV
Agreeableness	0.920	0.491	0.023	0.010
Neuroticism	0.928	0.518	4 0.0	0.005
Extroversion	0.921	0.494	0.147	0.057
Openness	0.882	0.485	0.088	0.048
Conscientiousness	0.925	0.509	0.147	0.065

Following CFA, determining the measurement model the construct validity was evaluated to ensure convergent, and discriminant validity of the variables. As illustrated in Table 3-12, all variables in the table have provided a sufficient convergent validity. The result shows that the Composite Reliability (CR) is between 0.882 - 0.928 in this construct. Convergent validity refers to a set of variables that presume to measure a construct (Kline, 2005). The standardized factor loadings were highly significant. Composite reliabilities (CR) of all variables exceeded the minimum limit of 0.70 (except for openness) and were larger than the average variance extracted (AVE). Estimated AVE was all almost above the acceptable threshold 0.50 level, which implied that more than one-half of the variances observed. To discriminant validity, we compared the maximum-shared squared variances (MSV) between factors and average

shared squared variance (ASV) with the average variance extracted. All constructs surpassed this test thus the discriminant validity was established. Discriminant validity can be tested by examining the AVE for each construct against squared correlations (shared variance) between the construct and all other constructs in the model. A construct will have adequate discriminant validity if the AVE exceeds the squared correlation among the constructs (Fornell & Larcker, 1981). Based on Table 3.12, AVE for each construct is more than each of the squared correlation between two constructs. Therefore, discriminant validity is adequate for all of the constructs.

Table 3.12: Construct Correlation Matrix for discriminant validity of NEO

Dimention	Agreeableness	Neuroticism	Extroversion	Openness	Conscientiousness
Agreeableness	**0.701**				
Neuroticism	0.054	**0.720**			
Extroversion	0.045	0.047	**0.703**		
Openness	0.111	0.117	0.279	**0.62**	
Conscientiousness	0.15	0.028	0.384	0.296	**0.714**

Note: Correlations are below the diagonal, squared correlations are above the diagonal, and AVE is presented on the diagonal, in bold

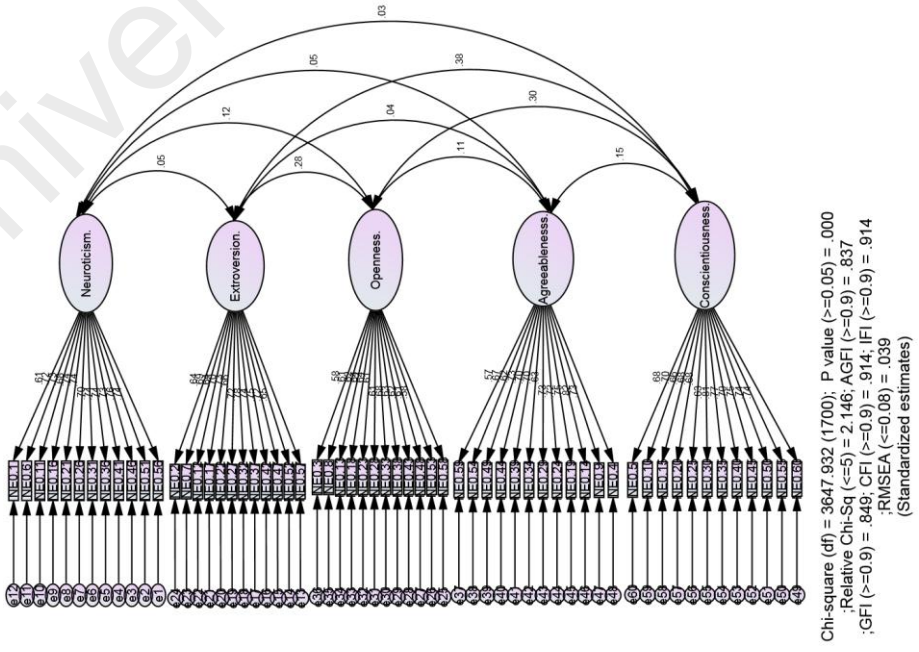

Figure 3.4: Measurement Model for NEO-FFI

3.7.2 Construct Validity of Clance Imposter Phenomenon(CIPS)

The convergent and discriminant validity of CIPS construct were examined with several tests. The confirmatory factor analysis (CFA) conducted by using AMOS 21 demonstrated a good model fit, supporting both convergent and discriminant validity.The measurement model obtained using AMOS showed satisfactory fit statistics (Chi-square = 424.997, df = 132, CFI = .940, AGFI = .922, GFI = .940, RMSEA =0.054). While an ideal RMSEA score is .05 or less, a value of about 0.08 indicates acceptable.

	CR	AVE	MSV	ASV
Fake	0.918	0.505	0.496	0.484
Discoun	0 797	0.568	0.496	0.427
Luck	0.816	0.526	0.472	0.415

Following CFA and determining the measurement model the construct validity was evaluated to ensure the convergent and discriminant validity of the variables. As illustrated in Table 3.13, all variables in the study have provided a sufficient convergent validity. The result shows that Composite Reliability (CR) is between 0.797 - 0.918 for this construct. Convergent validity refers to a set of variables that presume to measure a construct (Kline, 2005). The standardized factor loadings were highly significant. Composite reliabilities (CR) of all variables exceeded the minimum limit of 0.70 and were larger than the average variance extracted (AVE). Estimated AVE was all above the acceptable threshold 0.50 levels, which implied that more than one-half of the variances observed. To discriminant validity, we compared the maximum shared squared variances (MSV) between factors and average shared squared variance (ASV) with the average variance extracted. All constructs surpassed this test thus the discriminant validity was established. Discriminant validity can be tested by examining

the AVE for each construct against squared correlations (shared variance) between the construct and all other constructs in the model. A construct will have adequate discriminant validity if the AVE exceeds the squared correlation among the constructs (Fornell & Larcker, 1981; Hair et al., 2006). Based on Table 3.14 AVE for each construct is more than each of the squared correlation between two constructs. Therefore, discriminant validity is adequate for all of the constructs.

Table 3.14: Construct correlation matrix for discriminant validity of CIPS

Dimension	Fake	Discount	Luck
Fake	**0.71**		
Discount	0.704	**0.754**	
Luck	0.687	0.599	**0.726**

Note: Correlations are below the diagonal, squared correlations are above the diagonal, and AVE is presented on the diagonal, in bold

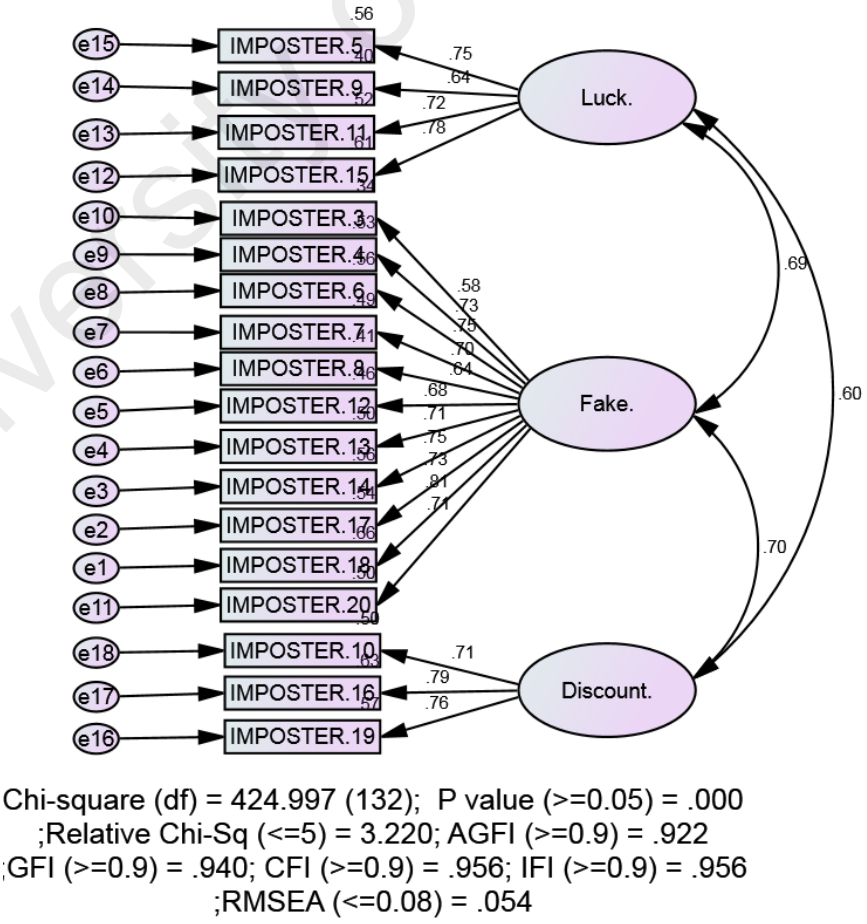

Figure 3.5: Measurement Model for Clance Imposter Phenomenon

3.7.3 Construct Validity of Mach IV

Convergent and discriminant validity of Mach IV constructs were examined with several tests. The confirmatory factor analysis (CFA) conducted by using AMOS 21 demonstrated a good model fit, supporting both convergent and discriminant validity.The measurement model obtained using AMOS showed satisfactory fit statistics (Chi-square = 406.851, df = 164, CFI = .947, AGFI = .932, GFI = .947, RMSEA =0.044). While an ideal RMSEA score is .05 or less, a value of about 0.08 indicates acceptable.

Dimension	CR	AVE	MSV	ASV
Cynical View Human Nature	0.881	0.552	0.283	0.196
Negative Interpersonal Tactics	0.832	0.553	0.283	0.166
Positive Interpersonal Tactics	0.886	0.564	0.220	0.155
Positive View Human Nature	0.691	0.429	0.259	0.174

As illustrated in Table 3.15, all variables in the study have provided a sufficient convergent validity. The result shows that Composite Reliability (CR) is between 0.691 to 0.886 in this construct. Convergent validity refers to a set of variables that presume to measure a construct (Kline, 2005). The standardized factor loadings were highly significant. Composite reliabilities (CR) of all variables exceeded the minimum limit of 0.70 except for Positive View Human Nature subscale and were larger than the average variance extracted (AVE). Estimated AVE were all above the acceptable threshold 0.50 level (except Positive View Human Nature), which implied that more than one-half of the variances observed. To discriminant validity, we compared the maximum shared squared variances (MSV) between factors and average shared squared variance (ASV) with the average variance extracted. All constructs surpassed this test thus the discriminant validity was established. Discriminant validity can be tested by examining

the AVE for each construct against squared correlations (shared variance) between the construct and all other constructs in the model. A construct will have adequate discriminant validity if the AVE exceeds the squared correlation among the constructs (Fornell & Larcker, 1981; Hair et al., 2006). Based on Table 3.16, AVE for each construct is more than each of the squared correlation between two constructs. Therefore, discriminant validity is adequate for all of the constructs. We had to delete item Mach12 from the measurement model in order to get the more accurate model.

Table 3.16: Construct correlation matrix for discriminant validity of Mach IV

	CVHN	NIT	PIT	PVHN
Cynical View of Human Nature	**0.743**			
Negative Interpersonal Tactics	0.532	**0.744**		
Positive Interpersonal Tactics	0.327	0.369	**0.751**	
Positive View of Human Nature	0.434	0.271	0.509	**0.655**

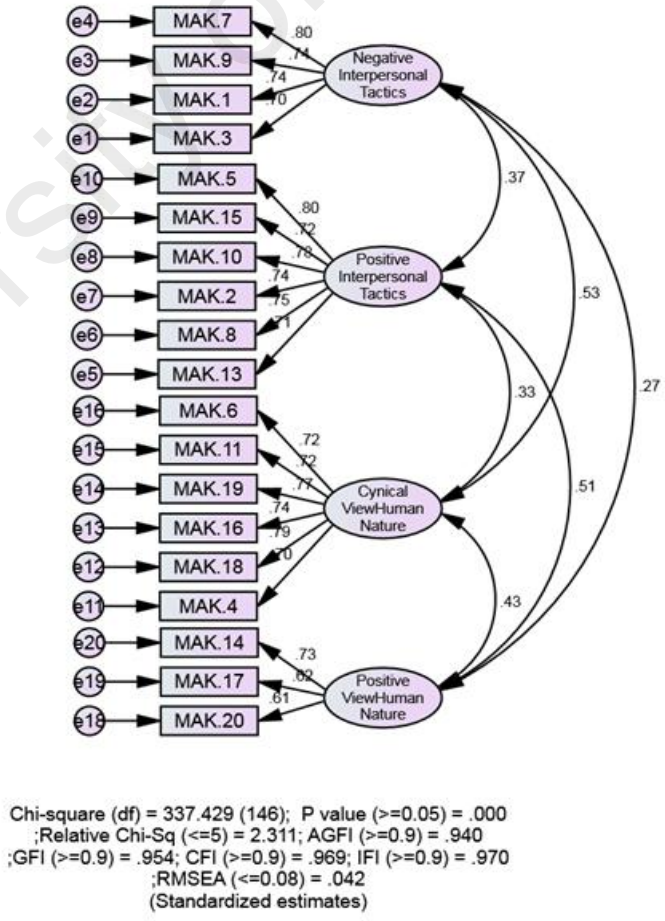

Figure 3.6: Measurement Model for Mach IV

3.7.4 Construct Validity of GHQ 28

The convergent and discriminant validity of Mach IV constructs were examined with several tests. The confirmatory factor analysis (CFA) conducted by using AMOS 21 demonstrated a good model fit, supporting both convergent and discriminant validity. The measurement model obtained using AMOS showed satisfactory fit statistics (Chi-square = 1004.239, df = 338, CFI = .947, AGFI = .895, GFI = .912, RMSEA = 0.051). While an ideal RMSEA score is .05 or less, a value of about 0.08 indicates acceptable fit.

Table 3.17: Convergent Validity of GHQ

Dimension	CR	AVE	MSV	ASV
Somatization	0.884	0.525	0.517	0.300
Anxiety	0.920	0.624	0.517	0.342
Depressi	0.894	0.549	0.350	0.258
Social Dysfunction	0.891	0.539	0.158	0.137

Following CFA and determining the measurement model the construct validity was evaluated to ensure the convergent and discriminant validity of the variables. As illustrated in Table 3.17, all variables in the study have provided a sufficient convergent validity. The result shows that Composite Reliability (CR) is between 0.884 to 0.920 in this construct. Convergent validity refers to a set of variables that presume to measure a construct (Kline, 2005). The standardized factor loadings were highly significant. Composite reliabilities (CR) of all variables exceeded the minimum limit of 0.70 and were larger than the average variance extracted (AVE). Estimated AVE was all above the acceptable threshold 0.50 levels, which implied that more than one-half of the variances observed. To discriminant validity, we compared the maximum shared squared variances (MSV) between factors and average shared squared variance (ASV) with the average variance extracted. All constructs surpassed this test thus the

discriminant validity was established. Discriminant validity can be tested by examining the AVE for each construct against squared correlations (shared variance) between the construct and all other constructs in the model. A construct will have adequate discriminant validity if the AVE exceeds the squared correlation among the constructs (Fornell & Larcker, 1981; Hair et al., 2006). Based on Table 3.18, AVE for each construct is more than each of the squared correlation between two constructs. Therefore, discriminant validity is adequate for all of the constructs.

Table 3.18: Construct correlation matrix for Discriminant validity of GHQ

	Somatization	**Anxiety**	**Depression**	**Social Dysfunction**
Somatization	**0.725**			
Anxiety	0.719	**0.79**		
Depression	0.526	0.592	**0.741**	
Social Dysfunction	0.325	0.397	0.385	**0.734**

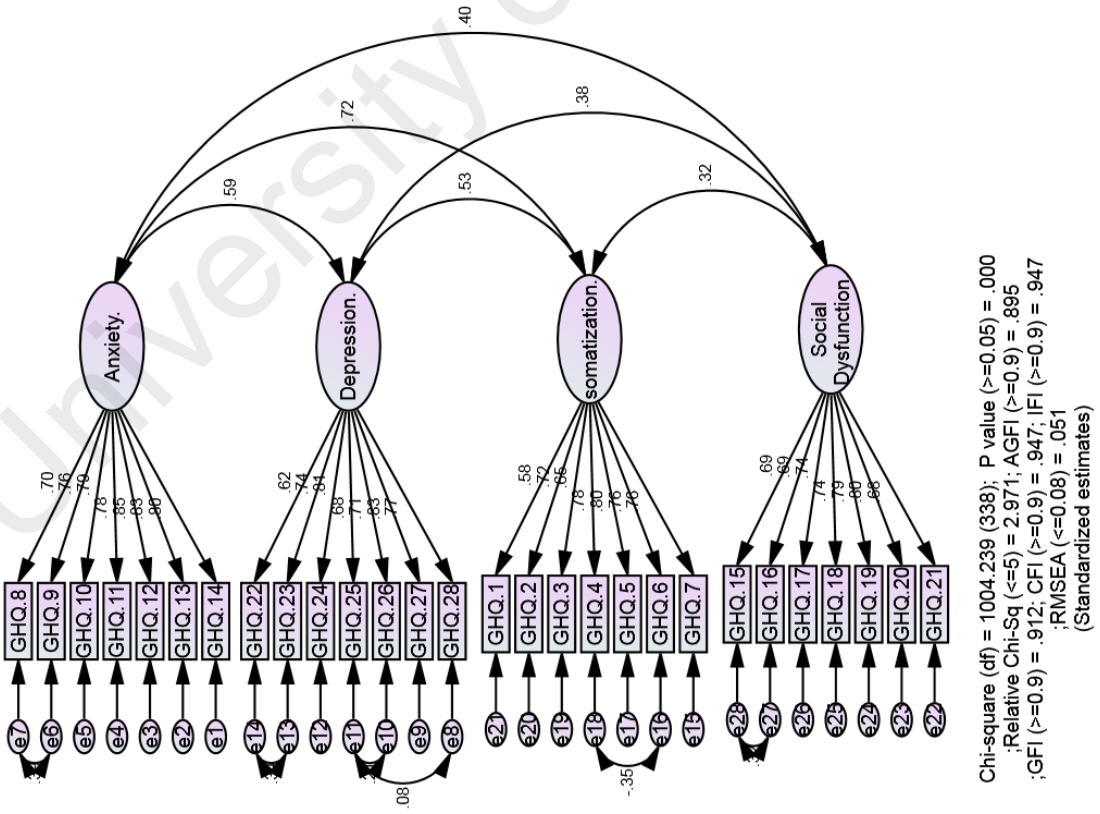

Figure 3.7: Measurement Model for GHQ 28

3.8 Data analysis

The data for all the research instruments will be numerically scored and quantified. Each of these quantitative scores will be entered into SPSS version 21 for analysis. The descriptive statistics will be used to organize, summarize, and display a set of numerical data (Gall et al, 2003).

In the present study exploratory data analysis (EDA) procedures was applied to examine all data in details before any specific statistical analysis is done and to determine the appropriateness of statistical techniques for data analysis by using some methods such as frequency distribution of dataset, description of the location (mean, mode, standard deviation). The following subsections will go through the main statistical analysis used in this research.

3.8.1 Comparision

In this research, a comparison between the variables was conducted by using 2-way ANOVA. The reason for opting this method was to compare the variables between groups (International and Malaysian) and gender as well as the interaction between group and gender at the same time. The interaction term in a two-way ANOVA informs whether the effect of one independent variable on the dependent variable is the same for all values of any other independent variable (and vice versa). For example, to check the effect of gender (male/female) on one of the variable influenced by nationality (International/ Malaysian), two-way ANOVA is the correct method to use.

3.8.2 Correlation

Correlation method was used to evaluate the relationships among the research variables according to the significant level P-value. Pearson's product moment correlations were performed to examine the presence of bivariate linear relationships and also to determine the significant relationships between the two variables. The correlation helps to clarify how the variables are related in strength and magnitude. The Pearson correlation coefficient, r, will be utilized for measurement of the extent of the linear relationship. Pearson r can take on only values from -1 to +1. This study used the Guilford and Fruchter (1973) rule of thumb to determine the strength of the relationship between variables. The p-value was set at .05 in these analyses.

In this study, Pearson Correlation Test was used to examine the relationship between independent variables (Big Five personality Dimension which include: neuroticism, extroversion, openness, agreeableness, and conscientious; Imposter phenomenon, and Machiavellian traits) as well as demographic characteristics contain age, gender, and level of education. Dependent variable was mental health in this study. Table 3-19 shows the criteria for interpreting the strength of the relationship between two variables.

Table 3.19: Criteria for interpreting strength of relationship between two variables

r	Strength of Relationship
<.20	Slight relationship
.20-.40	Low correlation, definite but small
.40-.70	Moderate correlation, substantial relationship
.70-.90	High correlation, marked relationship
>.90	Very high correlation, very dependable relationship

3.8.3 Regression

Multiple regression analysis is a powerful technique used for predicting the unknown value of a variable from the known value of two or more variables that called the predictors (Draper & Smith, 2014). In a narrower sense, multiple regressions may refer specifically to the estimation of continuous response variables that can be used in classification. However, multiple regressions can be divided into linear and polynomial regression depending on the response of the dependent variables to the change of the independent variables.

Multiple linear regression attempts to model the relationship between two or more explanatory variables and a response variable by fitting a linear equation to the observed data. In general, the multiple linear regression equations is given by:

$$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \ ... + \ \beta_n x_n \qquad \textbf{3.5}$$

Where $x_1, x_2, \dots, x_k$ is a linear combination of the independent variables and $\alpha, \beta_1, \beta_2, \dots, \beta_n$ are known as the regression coefficient.

In this research, the multiple linear regression will attempt to model to predict mental health based on personality traits. All the above equations will be used for modeling and comparison will make according to the R-squared. However, the prediction in social science research is too complicated. Therefore, is so difficult to get high R-squared.

3.9 Development of New Tool (UM-PTQ)

After verifying the results of the comparison, correlation and regression in the data analysis part, a short version personality inventory named University Malaya Personality Trait Questionnaire (UM-PTQ) was developed from the utilized research tools. First, factor loadings have been computed according to confirmatory factor analysis (CFA). The items with the highest loading factor have been selected to be in the new tool. In contrary, items a low loading factor has been ignored. Next, a new tool has been distributed to a portion of students in order to conduct a pilot study. Reliability of the test has been verified by using Cronbach's Alpha. Finally, the construct validity of the new tool was evaluated by using exploratory factor analysis. The factor analysis showed that the new tool is consisting of five dimensions of NEO-FFI, Mach IV, and CIPS which is proposed to evaluate students personality traits and mental health in this study. The methodology of developing the new tool presented in Figure 3.2. The following subsections will go through the method of developing the new tool in details.

3.9.1 Items Loading Factors

In confirmatory factor analysis, the relationship of each variable to the underlying factor is expressed by the factor loading. Factor loadings should be 0.7 or higher to confirm that independent variables identified a priori are represented by a particular factor, on the rationale that the 0.7 level corresponds to about half of the variance in the indicator being explained by the factor. Loading factors have been computed for the research questionnaires by using AMOS software (Version 21). Thus, AMOS can display the standardized factor loadings for each observed variable. Accordingly, the shortened questionnaire has been developed from the utilized research

tools. The result of the loading factor will be presented in the next chapter. In the first step considering the results of confirmatory factor analysis (CFA) for all instruments (Appendix J) for each dimension the highest contributed items based on their loading factor were selected and were used to form new questionnaires. Results showed that loading factors for ranged between 0.816 and 0.630. See Table 3.20.

Table 3.20: Loading Factor Range for Selected Items

Dimension	Range of Loading factors
Neuroticism	0.756 – 0.738
Extroversion	0.779 - 0.722
Openness	0.678 - 0.630
Agreeableness	0.816 - 0.726
Conscientiousness	0.812- 0.735
Mach	0.802- 0.772
Imposter	0.811- 0.751

To evaluate the new short form of personality traits questionnaire a pilot study was done among university students, seventy students contained 45 female, and 25 male completed the combined personality inventory UM-PTQ. Participant in this study was selected randomly among UM students and they were voluntary. A self-administrated questionnaire was distributed to the samples during working hours among students at different faculties in Malaya University campus. Among that, three responses were excluded from the analysis due to incomplete answerers. Finally, 67 samples consisted of the factor analysis of the UM-PTQ.

3.9.2 Pilot Study and Reliability Test

To measure the reliability of the new instrument, a pilot study was conducted among 70 students include both Malaysian and international students. The Cronbach's Alpha was employed to measure the reliability of the questionnaire. The reliability is inferred when an instrument consistently produces the same reading or values for the same observations every time they are made. As explained earlier if alpha value observed to be higher than 0.7, means that all of the items in the new questionnaire are reliable and the entire test is internally consistent. However, when a value of alpha observed in the range of 0.7 to 0.9 is considered good while when the range fall between 0.5 to 0.7 is considered as adequate. In addition, Corrected Item-Total Correlation presents in table showed the correlations between each item in the questionnaire and the total score. Thus, Cronbach's Alpha was calculated after collecting data using the new tool. The result will be presented in next chapter.

3.9.3 Exploratory Factor Analysis

Exploratory factor analysis examines the inter-correlations between all items in scale to reduce the data into a smaller number of dimensions (factors). The dimensions produced by factor analysis can be used as input for further analysis (Beavers et al., 2013). Exploratory factor analysis is commonly used when developing a scale (a scale is a collection of questions used to measure a particular research topic) and identify a set of latent constructs underlying a battery of measured variables is required (Fabrigar, Wegener, MacCallum, & Strahan, 1999). Exploratory factor analysis (EFA) has been used to uncover the underlying structure of the large set of questionnaires items. The underlying relationships between measured variables have been investigated

within factor analysis. Within the factor model, a function of common factors, unique factors, and errors of measurements expresses measured items have been identified. Common factors influence two or more measured variables, while each unique factor influences only one measured variable and does not explain correlations among measured variables (Norris & Lecavalier, 2010). EFA assumes that any indicator/measured variable may be associated with any factor. In the developing of scale stage, EFA has been used for construct validity.

3.10 Chapter Summary

This chapter addresses the overall philosophy of this research. It presents the research strategy that was followed in this research. This strategy includes a detailed description of the research design, research area, research instrument, as well as all the statistical methods that were employed to complete this research. Next chapter will go through the results and analysis.

CHAPTER 4: RESULTS

4.1 Introduction

This chapter presents the entire results of this research. The results consist of two parts namely: descriptive and inferential statistics. The descriptive analysis includes frequency, percentage, mean, and standard deviation for research variables and samples. The inferential statistics includes verifying the relationship among the research variables using the correlation analysis and regression. Further, comparisons among the research variables using 2-way ANOVA are presented in this chapter. Moreover, the shortened personality inventory has been presented at the end of this chapter. The following sections will go through the highlighted points in more details.

4.2 Demographic Characteristics of the Participants

Age: Table 4.1 presents demographic information between two groups of Malaysian and International students. In the category of age (<20 years) 3.2 present of student were within group one while it contained 26.3% of Malaysian group (Because International students are logically coming to study overseas in older ages). The second category of age 28.4 present was International and 54.3 percentages were Malaysian. In the third category, 33.9 percentages from a total of International student were in the third category and 12.8 % were Malaysian group. (34.5) percentage of International was above 30 years old and 6.8 percentage of Malaysian group were above 30 years old.

The level of Education: 19.4 percentage of the International group were undergraduate and 80.6 percentages were postgraduate students (here explains why

International students possess older ages since they mostly doing postgraduate). In Malaysian group 85(21.1%) were undergraduate and 318(78.9%) were postgraduate.

Gender: In International group 205(58.2%) were male and 147(41.8%) were female. In Malaysian group 170(42.2%) were male and 233(57.8%) were female.

Field of study: In International group 37 (10.7%) were from Literature / Human Science faculty, 49(14.2%) were from Economics/ Administration, 12(3.5%) were from Sports, 36 (10.4%) were from Languages/ Linguistics, 87(25.2%) Science, 30(8.7%) were from Education/ Psychology, 3(0.9%) were from Geographic/ Environment, 91(26.4%) were from Engineering. In Malaysian group 48(11.9) were from Literature/ Human Science faculty, 33(8.2) were from Economics/ Administration, 4(1) were from Sports, 19(4.7) were from Languages/ Linguistics, 120(29.8) Science, 42(10.4) were from Education/ Psychology, 15(3.7) were from Geographic/ Environment, 122(30.3) were from Engineering.

Table 4.1: Distribution of demographic variables among Malaysian and International Students n (%)

	Level	International	Malaysian
Age	<20 Years	11(3.2)	105(26.3)
	20 to 25 Years	98(28.4)	217(54.3)
	25 - 30 Years	117(33.9)	51(12.8)
	> 30 Years	119(34.5)	27(6.8)
Level of Education	Undergraduate	68(19.4)	85(21.1)
	Postgraduate	282(80.6)	318(78.9)
Gender	Male	205(58.2)	170(42.2)
	Female	147(41.8)	233(57.8)
Field of study	Literature / Human Science	37(10.7)	48(11.9)
	Economics / Administration	49(14.2)	33(8.2)
	Sports	12(3.5)	4(1)
	Languages / Linguistics	36(10.4)	19(4.7)
	Science	87(25.2)	120(29.8)
	Education/ Psychology	30(8.7)	42(10.4)
	Geographic / Environment	3(0.9)	15(3.7)
	Engineering	91(26.4)	122(30.3)

Table 4.2 demonstrate that 75.6 percent (266) of International students were from Asia, 11.1(39) percent were from Africa, and 3.4 (12) percent were from another continent, and 9.9 (35) percent did not declare their country of origin.

Table 4.2: Distribution of International students based on Continent

Continent	Frequency	Percent
Asia	266	35.2
Africa	39	5.2
Others	12	1.6

4.3 Descriptive Results

Descriptive data analysis offers an overview of variables and their measures and it can be useful for better understanding and interpretation of results. Descriptive analysis of different research variables and dimensions and related items was conducted through summarizing and describing results in the form of tables based on measures such as frequencies, mean and standard deviation.

4.3.1 Descriptive statistic for Traits of personality NEO-FFI

The NEO-FFI is a 60-item questionnaire that comprehensively measures Big Five personality traits. It has five dimensions included: Neuroticism, Extroversion, Openness, Agreeableness, and Consciousness. In this instrument, each dimension consists of 12 questions. 5 points Likert scale ranging from strongly disagrees to strongly disagree from 0-4 was applied. Table 4.3 presents Neuroticism, Table 4.4 presents Extroversion, Table 4.5 presents Openness, Table 4.6 presents Agreeableness, and Table 4.7 presents conscientiousness respectively.

4.3.1.1 Neuroticism

In NEO-FFI inventory question number 1, 6, 11, 16, 21, 26, 31, 36, 41, 46, 51, and 56 evaluate the measurement of neuroticism. According to descriptive statistics of related items to neuroticism (Table 4.3), the highest mean belongs to NEO11 for both International (M=2.03, SD=0.753) and the Malaysian (M=2.09, SD=0.676) group followed by NEO1 for both Malaysian (M=2.05. SD=0.631) and International (M=1.97, SD=0.691) students. NEO6 had a mean value of M=1.84, SD= 0.744 for International students and M=1.99, SD=633 for Malaysian students. NEO16 had a mean value of M=1.91, SD= 0.699 for International students and M=1.93, SD=938 for Malaysian students. NEO21 had a mean value of M=1.94, SD= 0.768 for International students and M=1.89, SD=636 for Malaysian students. NEO26 had a mean value of M=1.91, SD= 0.792 for International students and M=1.93, SD=785 for Malaysian students. NEO31 had a mean value of M=1.93, SD= 0.731 for International students and M=1.96, SD=651 for Malaysian students. NEO36 had a mean value of M=1.84, SD= 0.726 for International students and M=1.92, SD=714 for Malaysian students. NEO41 had a mean value of M=1.84, SD= 0.744 for International students and M=1.91, SD=784 for Malaysian students. NEO46 had a mean value of M=1.84, SD= 0.776 for International students and M=1.97, SD=736 for Malaysian students. NEO51 had a mean value of M=1.81, SD= 0.762 for International students and M=1.87, SD=756 for Malaysian students. NEO56 had a mean value of M=1.93, SD= 0.857 for International students and M=2, SD=748 for Malaysian students. U Mann-Whitney U test was applied for comparison of related items to neuroticism between Malaysian and International students and the results showed that except item6 there were no significant for all items between Malaysian and International students.

Table 4.3: Descriptive Statistic for Items of Neuroticism

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
1- I am not a worrier.	1.97	0.691	2.05	0.631	-1.657	0.097
6- I often feel inferior to others.	1.84	0.744	1.99	0.633	-3.115	0.002
11- When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.	2.03	0.753	2.09	0.676	-1.069	0.285
16- I rarely feel lonely or blue.	1.91	0.699	1.93	0.613	-0.078	0.938
21- I often feel tense and jittery.	1.94	0.768	1.89	0.636	-1.271	0.204
26- Sometimes I feel completely worthless.	1.91	0.792	1.93	0.758	-0.169	0.866
31- I rarely feel fearful or anxious.	1.93	0.731	1.96	0.651	-0.44	0.66
36- I often get angry at the way people treat me.	1.84	0.726	1.92	0.714	-1.355	0.175
41- Too often, when things go wrong, I get discouraged and felt like giving up.	1.91	0.784	1.92	0.732	-0.219	0.827
46- I am seldom sad or depressed.	1.91	0.776	1.97	0.736	-0.953	0.341
51- I often feel helpless and want someone else to solve my problems.	1.81	0.762	1.87	0.756	-1.171	0.241
56- At times, I have been so ashamed I just wanted to hide.	1.93	0.857	2.00	0.748	-1.37	0.171

4.3.1.2 Extroversion

In NEO-FFI inventory question number 2, 7, 12, 17, 22, 27, 32, 37, 42, 47, 52, and 57 evaluate the measurement (Dimension) of extroversion. According to descriptive statistics of related items to extroversion (Table 4.4), the highest mean belongs to NEO2 for both International (M=2.43, SD=767) and Malaysian students (M=2.52, SD=0.666) followed by NEO52 for both International (M=2.38, SD= 0.764) and Malaysian (M=2.39, SD=0.611) students. The lowest mean was belonged to NEO47 for both International (M=2.25, SD=727) and Malaysian (M=2.26, SD=0.602) students. U Mann-Whitney U test was applied for comparison of related items to extroversion

between Malaysian and International students and the results showed that except item7 there were no significant for all items between Malaysian and International students.

Table 4.4: Descriptive statistic for items of extroversion

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
2- I like to have a lot of people around me.	2.43	0.767	2.52	0.66	1.674	0.094
7- I laugh easily.	2.37	0.729	2.54	0.615	-3.347	0.001
12- I don't consider myself "light-hearted".	2.31	0.674	2.35	0.568	-0.68	0.497
17- I really enjoy talking to people.	2.41	0.768	2.5	0.636	-1.689	0.091
22- I like to be where the action is.	2.44	0.721	2.42	0.623	-0.529	0.597
27- I usually prefer to do things alone.	2.36	0.794	2.29	0.678	-1.433	0.152
32- I often feel as if I'm bursting with energy.	2.26	0.703	2.26	0.602	-0.123	0.902
37- I am a cheerful, high-spirited12 person.	2.41	0.771	2.45	0.63	-0.644	0.52
42- I am not an optimist.	2.27	0.742	2.26	0.568	-0.208	0.835
47- My life is fast-paced.	2.25	0.727	2.26	0.585	-0.461	0.644
52- I am a very active person.	2.38	0.764	2.39	0.611	-0.259	0.795
57- I would rather go my own way than be the leader of others.	2.32	0.804	2.28	0.656	-0.951	0.341

4.3.1.3 Openness

In NEO-FFI inventory question number 3, 8, 13, 18, 23, 28, 33, 38, 43, 48, 53, and 58 evaluate the measurement (Dimension) of openness. According to descriptive statistics of related items to openness (Table 4.5) the highest mean belongs to NEO8 for

both International (M=2.48, SD=539) and Malaysian students (M=2.4952, SD=0.557) followed by NEO58 and NEO53 for International students (M=2.41, SD= 0.567) whereas NEO3 and NEO38 for Malaysian (M=2.39, SD=0.611) students. The lowest mean for the International Student (M=2.18, SD=419) belongs to NEO28, and for Malaysian students belongs to NEO48 (M=2.24, SD=0.516). U Mann-Whitney U test was applied for comparison of related items to openness between Malaysian and international students and the results showed that there were significant for items of NEO18, NEO28, NEO33, NEO38 between Malaysian and International students.

Table 4.5: Descriptive statistic for items of Openness

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
3- I don't like to waste my time daydreaming.	2.39	0.549	2.38	0.553	-0.199	0.842
8- In general, once I find the right way to do something, I stick to it.	2.48	0.539	2.49	0.557	-0.516	0.606
13- I am intrigued by the patterns I find in art and nature.	2.37	0.544	2.33	0.541	-0.793	0.428
18- I believe letting students hear controversial speakers can only confuse and mislead them.	2.25	0.473	2.33	0.547	-2.207	0.027
23- Poetry has little or no effect on me.	2.22	0.469	2.27	0.542	-1.347	0.178
28- I often try new and foreign foods.	2.18	0.419	2.37	0.538	-5.628	<0.01
33- I seldom notice the moods or feelings that different environments produce.	2.22	0.481	2.32	0.527	-2.691	0.007
38- I believe we should look to our religious authorities for decisions on moral issues.	2.29	0.519	2.38	0.529	-2.228	0.026

'Table 4.5, continued'

43- Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave.	2.3	0.53	2.28	0.536	-0.566	0.571
48- I have little interest in speculating on the nature of the universe or the human condition.	2.3	0.528	2.24	0.516	-1.736	0.083
53- I have a lot of intellectual curiosity.	2.41	0.563	2.35	0.546	-1.428	0.153
58- I often enjoy playing with theories or abstract ideas.	2.41	0.567	2.26	0.555	-3.633	<0.01

4.3.1.4 Agreeableness

In NEO-FFI inventory question number 4, 9, 14, 18, 24, 29, 34, 39, 44, 49, 54, and 59 evaluate the measurement (Dimension) of agreeableness. According to descriptive statistics of related items to agreeableness (Table 4-6), the highest mean belongs to NEO49 for both International (M=2.28, SD=846) and Malaysian students (M=2.29, SD=0.736) followed by NEO4 for both International (M=2.26, SD= 1.013) and Malaysian (M=2.29, SD=0.817) students. The lowest mean was belonged to NEO44 for both International (M=2.03, SD=835) and Malaysian (M=2.07, SD=0.698) students. U Mann-Whitney U test was applied for comparison of related items to agreeableness between Malaysian and International students and the results showed that there were significant for items of NEO9, NEO24, NEO54, between Malaysian and International students.

Table 4.6: Descriptive statistic for items of Agreeableness

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
4- I try to be courteous to everyone I meet.	2.26	1.013	2.29	0.817	-0.224	0.823
9- I often get into arguments with my family and co-workers.	2.12	1.005	1.98	0.799	-2.415	0.016
14- Some people think I'm selfish and egotistical.	2.05	0.938	1.99	0.815	-1.22	0.222
19- I would rather cooperate with others than compete with them.	2.19	0.981	2.25	0.778	-0.293	0.769
24- I tend to be cynical and sceptical of others' intentions.	2.09	0.848	2.04	0.722	-1.318	0.187
29- I believe that most people will take advantage of you if you let them.	2.22	0.888	2.24	0.774	-0.034	0.973
34- Most people I know like me.	2.26	0.873	2.21	0.76	-1.448	0.148
39- Some people think of me as cold and calculating.	2.1	0.83	2.07	0.779	-0.671	0.502
44- I m hard-headed and tough-minded in my attitudes.	2.03	0.835	2.07	0.698	-0.381	0.703
49- Generally try to be thoughtful and considerate.	2.28	0.846	2.29	0.738	-0.178	0.859
54- If I don't like people, I let them know it.	2.09	0.912	1.97	0.764	-2.419	0.016
59- If necessary, I am willing to manipulate people to get what I want.	2.02	0.893	2.05	0.785	-0.362	0.717

4.3.1.5 Conscientiousness

In NEO-FFI inventory question number 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, and 60 evaluate the measurement (Dimension) of conscientiousness. According to descriptive statistics of related items to conscientiousness (Table 4.7), the highest mean belongs to NEO35 for both International (M=2.62, SD=872) and Malaysian students (M=2.64, SD=0.751) followed by NEO40 for both International (M=2.58, SD= 0.823) and Malaysian (M=2.64, SD=0.751) students. The lowest mean was belonged to NEO15 for both International (M=2.38, SD=79) and Malaysian (M=2.29, SD=0.75) students. U Mann-Whitney U test was applied for comparison of related items to conscientiousness between Malaysian and International students and the results showed that there were significant for items of NEO15, NEO45 between Malaysian and International students.

Table 4.7: Descriptive statistic for items of Conscientiousness

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
5- I keep my belong ngs neat and clean.	2.53	0.806	2.49	0.738	-0.946	0.344
10- I am pretty good about pcing myself so as to get things done on time.	2.49	0.816	2.44	0.718	-1.59	0.112
15- I am not a very methodical person.	2.38	0.79	2.29	0.75	-2.39	0.017
20- I try to perform all the tasks assigned to me conscientiously	2.54	0.801	2.59	0.676	-0.254	0.799
25- I have a clear set of goals and work towards then in an orderly fashion.	2.49	0.837	2.5	0.71	-0.661	0.509
30- I wasted a lot of time before settling down to work.	2.53	0.708	2.47	0.655	-1.559	0.119
35- I work hard to accomplish my goals.	2.62	0.872	2.64	0.751	-0.381	0.703
40- When I make a commitment, I can always be counted on to follow through.	2.58	0.823	2.61	0.702	-0.268	0.788
45- Sometimes I'm not as dependable or reliable as I should be.	2.43	0.848	2.34	0.737	-2.055	0.04
50- I am a productive person who always gets the jobs done.	2.46	0.836	2.54	0.723	-0.821	0.411
55- I never seem to be able to get organized.	2.39	0.934	2.36	0.846	-0.436	0.663
60- I strive1 for excellence in everything I do.	2.49	0.88	2.56	0.8	-1.131	0.258

4.3.2 Descriptive statistics for Traits of personality Imposter

The Clance Imposter Phenomenon Scale (CIPS) is a 20-item It consists of 20 questions and the subjects are to choose the responses from the range 1 "never", 2 "rarely", 3 "Sometimes", 4 "often", 5 "very high". It has three dimensions included: Luck, Discount, and Fake. In this instrument dimension of Luck consists of four questions, Fake 11 questions, and Discount contains three questions. The first two

questions are not belonging to any dimension. Table 4.8 presents a dimension of Fake, Table 4-9 presents Luck, and Table 4.10 presents Discount respectively.

4.3.2.1 Fake

In Clance Imposter Phenomenon Scale (CIPS) question number 3, 4, 6, 7, 8, 12, 13, 14, 17, 18, and 20 evaluate the measurement (Dimension) of fake. According to descriptive statistics of related items to fake (Table 4-12) in a group of International students the highest mean belongs to question number 3 (IP3) (M=3.24, SD=819) followed by IP4 (M=3.16, SD=0.841), IP20 (M=3.16, SD=0.9). The lowest mean belonged to IP13 (M=3, SD=0.877). In a group of Malaysian students, highest mean belongs to question number 4 (M=3.27, SD=0.77) followed by IP17 (M=3.25, SD=0.79). The lowest mean belonged to IP8 (M=3.1, SD=0.785) and IP12 (M=3.1, SD=0.795). U Mann-Whitney U test was applied for comparison of related items to fake between Malaysian and International students and the results showed that there were significant for items of PI17 between Malaysian and International students.

Table 4.8: Descriptive statistic for items of Fake

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P value**
3. I avoid evaluations if possible and have a dread of others evaluating me.	3.24	0.81	3.16	0.74	1.53	0.12
4.When people praise me for something I've accomplished, I'm afraid I won't beable to live up to their expectations of me in the future.	3.16	0.84	3.27	0.77	-1.80	0.07
6. I'm afraid people important to me may find out that I'm not as capable as they think I am.	3.09	0.89	3.13	0.81	-1.11	0.26
7. I tend to remember the incidents in which I have not done my best more than those times I have done my best.	3.12	0.84	3.16	0.76	-0.76	0.44
8. I rarely do a project or task as well as I'd like to do it.	3.06	0.88	3.1	0.78	-0.94	0.34
12.I'm disappointed at times in my present accomplishments and think I should have accomplished much more	3.08	0.86	3.1	0.79	-0.31	0.75
13. Sometimes I'm afraid others will discover how much knowledge or ability I really lack.	3.00	0.87	3.06	0.80	-0.92	0.35
14. I'm often afraid that I may fail at a new assignment or undertaking even though I generally do well at what I attempt.	3.14	0.84	3.18	0.77	-0.56	0.57
17. I often compare my ability to those around me and think they may be more intelligent than I am.	3.04	0.88	3.25	0.79	-3.06	0.00
18. I often worry about not succeeding with a project or examination, even though others around me have considerable confidence that I will do well.	3.14	0.81	3.23	0.78	-1.44	0.14
20. I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement.	3.16	0.9	3.11	0.87	-0.70	0.48

4.3.2.2 Luck

In Clance Imposter Phenomenon Scale (CIPS) question number 5, 9, 11, and 15 evaluate the measurement (Dimension) of Luck. According to descriptive statistics of related items to Luck (Table 4.13) in a group of International students the highest mean belongs to question number 5 (M=2.91, SD=0.974) followed by IP9 (M=2.91, SD=1.048), IP15 (M=2.91, SD=0.975). The last and least mean was belongs to IP11 (M=2.77, SD=1.048). In a group of Malaysian students, highest mean belongs to question number 15 (M=3.22, SD=0.783) followed by IP11 (M=3.17, SD=0.844). The last and the least lowest mean was belonged to IP5 (M=3.12, SD=0.839) and IP9 (M=3.1, SD=0.888).U Mann-Whitney U test was applied for comparison of related items to luck between Malaysian and International students and the results showed that there were significant for items of PI5, PI11, PI15 between Malaysian and International students.

Table 4.9: Descriptive statistic for items of Luck

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
5. I sometimes think I obtained my present position or gained my present success because I happened to be in the right place at the right time or knew the right people.	2.91	0.974	3.12	0.839	-3.082	0.002
9. Sometimes I feel or believe that my success in my life or in my job has been the result of some kind of error.	2.91	1.048	3.01	0.888	-1.357	0.175
11. At times, I feel my success has been due to some kind of luck.	2.77	1.04	3.17	0.844	-5.431	<0.01
15. When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success.	2.91	0.975	3.22	0.783	-4.472	<0.01

4.3.2.3 Discount

In Clance Imposter Phenomenon Scale (CIPS) question number 10, 16, and 19 evaluate the measurement (Dimension) of Discount. According to descriptive statistics of related items to Discount (Table 4.14) in a group of International students the highest mean belongs to question number 19 (M=3.21, SD=0.985) followed by IP16 (M=3.05, SD=0.911). The last and least mean was belongs to IP10 (M=2.94, SD=0.963). In a group of Malaysian students, highest mean belongs to question number 19 (M=3.27, SD=0.85) followed by IP16 (M=3.12, SD=0.754).). U Mann-Whitney U test was applied for comparison of related items to Discount between Malaysian and International students and the results showed that there were no significant for all items between Malaysian and International students.

Table 4.10: Descriptive Statistic for Items of Discount

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
10. it's hard for me to accept compliments or praise about my intelligence or accomplishments.	2.94	0.963	2.99	0.796	-0.226	0.821
16. If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I've done.	3.05	0.911	3.12	0.754	-0.389	0.697
19. If I'm going to receive a promotion or gain recognition of some kind, I hesitate to tell others until it is an accomplished fact.	3.21	0.985	3.27	0.85	-0.481	0.631

4.3.3 Descriptive statistics for Traits of personality Machiavellian:

The Mach IV is made up of 20 items and the subjects are to choose the responses to rate the extent to which they agreed or disagreed with the statements on a 5-point Likert-type scale: 1 = Strongly Disagree, 2 = Disagree, 3=Neutral, 5 = Agree and 6 =Strongly Agree. In our study, we have chosen the four subscale design, which is including Positive View Human Nature, Cynical View Human Nature, Positive interpersonal Tactics, and Negative interpersonal tactics. Positive View Human Nature contains four questions, Cynical View Human Nature contains six questions, Positive interpersonal Tactics contains six questions, and Negative interpersonal tactics have four items. Tables 4.15, 4.16, 4.17, and Table 4.18 present each dimension mean and standard deviation respectively.

4.3.3.1 Positive View of Human Nature

In The Mach IV question number 14, 17, 20, and 12 evaluate the measurement (Dimension) of The Positive View Human Nature. According to descriptive statistics of related items to Positive View Human Nature (Table 4.11) in a group of International students the highest mean belongs to question number Mach14 (M=3.29, SD=835) followed by Mach17 (M=3.15, SD=0.773). The last and least mean was belongs to Mach12 (M=3.1, SD=0.785, and Mach12 (M=3.09, SD=1.02). In a group of Malaysian students, highest mean belongs to question number Mach14 (M=3.43, SD=0.777) followed by Mach20 (M=3.1, SD=0.723). The last and least mean was belongs to Mach17 (M=3.17, SD=0.785, and Mach12 (M=2.92, SD=0.881). U Mann-Whitney U test was applied for comparison of related items to Positive View Human Nature

between Malaysian and International students and the results showed that there were significant for items Mach14, Mach12 between Malaysian and International students.

Table 4.11: Descriptive statistic for items of Positive View Human Nature

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
14. Most people are basically good and kind.	3.29	0.835	3.43	0.777	-2.696	0.007
17. Most people who get ahead in the world lead clean, moral lives.	3.15	0.773	3.17	0.723	-0.375	0.708
20. Most men are brave.	3.1	0.785	3.2	0.749	-1.723	0.085
12. People suffering from incurable diseases should have the choice of being put painlessly to death.	3.09	1.02	2.92	0.881	-2.518	0.012

4.3.3.2 Negative Interpersonal Tactics

In The Mach IV question number 1, 3, 7, and 9 evaluate the measurement (Dimension) of The Negative interpersonal tactics. According to descriptive statistics of related items to Negative interpersonal tactics (Table 4.12) in a group of International students, the highest mean belongs to question number Mach3 (M=3.32, SD=0.928) followed by Mach1 (M=3.21, SD=0.894) and Mach9 (M=3.21, SD=0.914).The last mean was belonged to Mach7 (M=3.18, SD=0.934. In a group of Malaysian students, highest mean belongs to question number Mach1 (M=3.23, SD=0.869) followed by Mach3 (M=3.21, SD=0.861). The last and least mean was belongs to Mach7 (M=3.15, SD=0.886, and Mach9 (M=3.07, SD=0.798). U Mann-Whitney U test was applied for comparison of related items to Negative Interpersonal Tactics between Malaysian and International students and the results showed that there were significant for items Mach9, Mach3 between Malaysian and International students.

Table 4.12: Descriptive statistics for items of Negative interpersonal tactics

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
7. Never tell anyone the real reason you did something unless it is useful to do so	3.18	0.934	3.15	0.866	-0.554	0.579
9. It is wise to flatter important people.	3.21	0.914	3.07	0.798	-2.434	0.015
1. The best way to handle people is to tell them what they want to hear.	3.21	0.894	3.23	0.869	-0.582	0.56
3. Anyone who completely trusts anyone is asking for trouble.	3.32	0.928	3.21	0.861	-2.153	0.031

4.3.3.3 Positive Interpersonal Tactics

In The Mach IV question number 2, 5, 8, 10, 13, and 15 evaluate the measurement (Dimension) of The Positive interpersonal tactics. According to descriptive statistics of related items to Positive interpersonal tactics (Table 4.13) in a group of International students the highest mean belongs to question number Mach5 (M=3.62, SD=0.95) followed by Mach10 (M=3.621, SD=0.929). The lowest mean belonged to Mach13 (M=3.47, SD=0.896). In a group of Malaysian students, highest mean belongs to question number Mach10 (M=3.62, SD=0.929) followed by Mach5 (M=3.62, SD=0.854). The last and least mean was belongs to Mach15 (M=3.5, SD=0.783) and Mach13 (M=3.53, SD=0.85). U Mann-Whitney U test was applied for comparison of related items to Positive Interpersonal Tactics between Malaysian and International students and the results showed that there were no significant for all items between Malaysian and International students.

Table 4.13: Descriptive statistics for items of Positive Interpersonal Tactics

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
5. Honesty is the best policy in all cases.	3.62	0.95	3.62	0.854	-0.242	0.808
15. There is no excuse for lying to someone else.	3.51	0.84	3.5	0.783	-0.317	0.751
10. All in all, it is better to be humble and honest than important and dishonest.	3.62	0.929	3.63	0.816	-0.021	0.983
2. When you ask someone to do something for you, it is best to give the real reasons for wanting it rather than giving reasons which might carry more weight.	3.55	0.879	3.56	0.843	-0.476	0.634
8. One should take action only when sure it is morally right.	3.51	0.844	3.54	0.804	-0.881	0.378
13. It is possible to be good in all respects.	3.47	0.896	3.53	0.85	-1.15	0.25

4.3.3.4 Cynical View of Human Nature

In The Mach IV question number 4, 6, 11, 19, 16, and 18 evaluate the measurement (Dimension) of The Cynical View of Human Nature. According to descriptive statistics of related items to Cynical View Human Nature (Table 4.14) in a group of International students the highest mean belongs to question number Mach6 (M=3.18, SD=0.704) followed by Mach4 (M=3.13, SD=0.752). The lowest mean belonged to Mach19 (M=2.99, SD=0.732) and Mach18 (M=3.02, SD=0. 732). In a group of Malaysian students, highest mean belongs to question number Mach6 (M=3.24, SD=0.663) followed by Mach5 (M=3.62, SD=0.854). The last and least mean was belongs to Mach18 (M=3.17, SD=0.706) and Mach11 (M=3.17, SD=0. 627). U Mann-Whitney U test was applied for comparison of related items to Cynical View Human Nature between Malaysian and International students and the results showed

that there were significant for items Mach18, Mach19 between Malaysian and International students.

Table 4.14: Descriptive statistics for items of Cynical View Human Nature

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
6. It is safest to assume that all people have vicious streak and it will come out when they are given a chance.	3.18	0.704	3.24	0.663	-1.351	0.177
11. Barnum was very wrong when he said there's a sucker born every minute.	3.11	0.646	3.17	0.627	-1.239	0.215
19. The biggest difference between most criminals and other people is that criminals are stupid enough to get caught.	2.99	0.732	3.16	0.668	-3.279	0.001
16. Most men forget more easily the death of their father than the loss of their property.	3.06	0.704	3.14	0.638	-1.547	0.122
18. Generally speaking, men won't work hard unless they're forced to do so	3.02	0.732	3.17	0.706	-2.913	0.004
4. It is hard to get ahead without cutting corners here and there.	3.13	0.752	3.14	0.711	-0.048	0.962

4.3.4 Descriptive statistics General Health Questionnaire

The GHQ-28 has a 4-item response scale anchored (typically) with ‘Not at all’, ‘No more than usual’, ‘Rather more than usual’, and ‘Much more than usual’. Several scoring options are available; we used the Likert method to indicate symptom severity, which scores the item response between 0–3 (0–1–2–3, subscale range 0 to 21) as this is the recommended method for assessment of the subscales. In this instrument consist of four dimension include of Somatization, Depression, Anxiety, Social Dysfunction and each scale consist of seven items. Tables 4.18, 4.19, 4.20, and 4.21 present each dimension mean and standard deviation respectively.

4.3.4.1 Somatization

In The GHQ inventory question number 1, 2, 3, 4, 5, 6, and 7 evaluate the subscale of the Somatization. According to descriptive statistics of related items to Somatization (Table 4.15) in a group of International students the highest mean belongs to question number GHQ3 (M=1.53, SD=0.86) followed by GHQ6 (M=1.45, SD=0.945). The lowest mean belonged to GHQ2 (M=1.3, SD=0.998) and GHQ1 (M=1.32, SD=0.976). In the group of Malaysian students, the highest mean belongs to question number GHQ6 (M=1.66, SD=0.799) followed by GHQ1 (M=1.63, SD=0.785). The last and least mean was belongs to GHQ4 (M=1.39, SD=0.893) and GHQ7 (M=1.47, SD=0.838). U Mann-Whitney U test was applied for comparison of related items to Somatization between Malaysian and International students and the results showed that there were significant for items GHQ1, GHQ2, GHQ6 between Malaysian and International students.

Table 4.15: Descriptive statistics for items of Somatization

Items	International		Malaysian			
	Mean	**SD**	**Mean**	**SD**	**Z**	**P value**
1. Been feeling perfectly well and in good health?	1.32	0.976	1.63	0.785	-4.447	<0.01
2. Been feeling in need f a good tonic?	1.3	0.998	1.5	0.888	-2.721	0.007
3. Been feeling run down and out of sorts?	1.53	0.86	1.56	0.813	-0.215	0.83
4. Felt that you are ill?	1.34	0.961	1.39	0.893	-0.666	0.506
5. Been getting any pains in your head?	1.48	0.94	1.55	0.84	-0.752	0.452
6. Been getting a feeling of tightness or pressure in your head?	1.45	0.945	1.66	0.799	-2.777	0.005
7. Been having hot or cold spells?	1.41	0.942	1.47	0.838	-0.52	0.603

4.3.4.2 Depression

In The GHQ inventory question number 8, 9, 10, 11, 12, 13, and 14 evaluate the subscale of the Depression. According to descriptive statistics of related items to Depression (Table 4.16) in the group of International students, the highest mean belongs to question number GHQ8 (M=1.53, SD=0.908) followed by GHQ13 (M=1.52, SD=0.867). The lowest mean was belonged to GHQ9 (M=1.42, SD=0.873) and GHQ12 (M=1.42, SD=0.893). In a group of Malaysian students, the highest mean belongs to question number GHQ8 (M=1.54, SD=0.85) followed by GHQ11 (M=1.54, SD=0.77). The last and least mean was belongs to GHQ12 (M=1.46, SD=0.82) and GHQ9 (M=1.47, SD=0.808). U Mann-Whitney U test was applied for comparison of related items to depression between Malaysian and International students and the results showed that there were no significant for all items between Malaysian and International students.

Table 4.16: Descriptive statistics for items of Depression

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
8. Lost much sleep over worry?	1.53	0.908	1.54	0.85	-0.263	0.793
9. Had difficulty in staying asleep once you are off?	1.42	0.873	1.47	0.808	-0.622	0.534
10. Felt constantly under strain?	1.49	0.877	1.48	0.811	-0.476	0.634
11. Been getting edgy and bad-tempered?	1.44	0.878	1.54	0.77	-1.269	0.204
12. Been getting scared or panicky for no good reason?	1.42	0.893	1.46	0.82	-0.292	0.77
13. Found everything getting on top of you?	1.52	0.867	1.5	0.796	-0.679	0.497
14. Been feeling nervous and strung up all the time?	1.44	0.938	1.5	0.871	-0.709	0.478

4.3.4.3 Anxiety

In The GHQ inventory question number 15, 16, 17, 18, 19, 20, and 21 evaluate the subscale of the Anxiety. According to descriptive statistics of related items to Anxiety (Table 4.17) in a group of International students the highest mean belongs to question number GHQ16 (M=1.75, SD=0.752) followed by GHQ18 (M=1.72, SD=0.725). The lowest mean belonged to GHQ20 (M=1.63, SD=0.78) and GHQ21 (M=1.63, SD=0.82). In a group of Malaysian students, highest mean belongs to question number GHQ16 (M=1.72, SD=0.693) followed by GHQ18 (M=1.7, SD=0.73). The last and least mean was belongs to GHQ20 (M=1.6, SD=0.783) and GHQ21 (M=1.6, SD=0.815). U Mann-Whitney U test was applied for comparison of related items to anxiety between Malaysian and International students and the results showed that there were no significant for all items between Malaysian and International students.

Table 4.17: Descriptive statistics for items of Anxiety

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
15. Been managing to keep yourself busy and occupied?	1.68	0.778	1.62	0.784	-1.142	0.254
16. Been taking longer over the things you do?	1.75	0.752	1.72	0.693	-0.716	0.474
17. Felt on the whole you were doing things well?	1.7	0.744	1.69	0.74	-0.052	0.958
18. Been satisfied with the way you have carried out your task?	1.72	0.725	1.7	0.73	-0.361	0.718
19. Felt that you are playing a useful part in things?	1.7	0.771	1.63	0.762	-1.3	0.193
20. Felt capable of making decisions about things?	1.63	0.78	1.6	0.783	-0.615	0.539
21. Been able to enjoy your normal day-to day activities?	1.63	0.82	1.6	0.815	-0.77	0.441

4.3.4.4 Social Dysfunction

In The GHQ inventory question number 22, 23, 24, 25, 26, 27, and 28 evaluate the subscale of the Social Dysfunction. According to descriptive statistics of related items to Social Dysfunction (Table 4.18) in a group of International students the highest mean belongs to question number GHQ22 (M=1.32, SD=0.982) followed by GHQ22 (M=1.21, SD=0.987). The lowest mean belonged to GHQ27 (M=0.99, SD=1.01) and GHQ24 (M=1.01, SD=0.993). In a group of Malaysian students, highest mean belongs to question number GHQ26 (M=1.22, SD=0.927) followed by GHQ25 (M=1.16, SD=0.958). The last and least mean was belongs to GHQ24 (M=0.9, SD=0.97) and GHQ23 (M=0.95, SD=0.977). U Mann-Whitney U test was applied for comparison of related items to social dysfunction between Malaysian and International students and the results showed that there were significant for items GHQ22, GHQ23 between Malaysian and International students.

Table 4.18: Descriptive statistics for items of Social Dysfunction

	International		Malaysian			
Items	**Mean**	**SD**	**Mean**	**SD**	**Z**	**P Value**
22. Been thinking of yourself as a worthless person?	1.32	0.982	1.03	0.995	-3.914	<0.01
23. Felt that life is entirely hopeless?	1.21	0.987	0.95	0.977	-3.486	<0.01
24. Felt that life isn't worth living?	1.01	0.993	0.9	0.97	-1.45	0.147
25. The thought of the possibility that you might make away with yourself?	1.21	0.966	1.16	0.958	-0.654	0.513
26. Found at times you couldn't do anything because your nerves were too bad?	1.15	0.993	1.22	0.927	-1.128	0.259
27. Found yourself wishing you were dead and away from it all?	0.99	1.01	0.97	0.95	-0.22	0.826
28. Found that the idea of taking your own life kept coming into your mind?	1.05	1.005	0.99	1.01	-0.812	0.417

4.4 Inferential Statistics

This part includes the inferential statistics analysis and results for all the research variables. The comparisons of the personality traits (Big-5, Imposter, Machiavellian) and mental health between the selected two groups (Malaysia and International students) have been presented. Further, the relationship between personality traits, imposter, Machiavellian, and mental health has been presented. Prior to data analysis, all dependent variables were subjected to normality test and the results revealed that all these variables were distributed normally.

4.4.1 Comparisons of Personality Traits and Mental Health

To assess whether there were significant differences between genders (Male and Female), groups (Malaysian and International) and also their interaction (Groups* Gender) a two-way ANOVA was applied.

4.4.1.1 Big Five Personality

For Big-5 personality, the null hypotheses assumed that there are no significant differences in the Big-5 personality traits and its dimensions between Malaysian and International students by gender. Table 4.19 presents the comparison between Malaysian and International students by gender and its interaction based on Big-5 personality. As presented in the table, the outcomes of two-way ANOVA on Neuroticism showed that there was a significant difference between male and female ($F= 8.06$, $p= .000$), but there was no significant difference between Malaysian and International students for Neuroticism ($F=0.113$, $p=0.736$). According to these results, there was no significant interaction between gender and groups for Neuroticism. The outcomes of two-way ANOVA on Extroversion showed that there was no significant

difference between male and female (F= 0.844, p= 0.359) and between Malaysian and International students for Extroversion (F=2.074, p=0.150). According to these results, there was a significant interaction between gender and groups for Extroversion.

Table 4.19: Summary of results of Two Way Anova for Big 5 subscales

	Source	df	MS	F	P value
Neuroticism	Group	1	.032	.113	.736
	Gender	1	8.06	28.61	<0.001
	Group * Gender	1	.010	.037	.848
Extroversion	Group	1	.209	.844	.359
	Gender	1	.514	2.074	.150
	Group * Gender	1	.943	3.807	.051
Openness	Group	1	.032	.257	.613
	Gender	1	.027	.222	.638
	Group * Gender	1	.000	.003	.960
Agreeableness	Group	1	.365	.990	.320
	Gender	1	3.203	8.699	.003
	Group * Gender	1	.003	.009	.926
Conscientiousness	Group	1	.002	.007	.935
	Gender	1	.330	.982	.322
	Group * Gender	1	.039	.117	.733

The outcomes of two-way ANOVA on Openness showed that there was no significant difference between male and female (F= 0.257, p= 0.613) and also between Malaysian and International students for Openness (F= 0.222, p= 0.638). According to these results, there was no significant interaction between gender and groups for Openness. The outcomes of two-way ANOVA on Agreeableness showed that there was a significant difference between male and female (F= 8.699, p= 0.003) but there was no significant difference between Malaysian and International students for Agreeableness (F= 0.990, p= 0.320). According to these results, there was no significant interaction between gender and groups for Agreeableness. The outcomes of two-way ANOVA on conscientiousness showed that there was no significant difference between male and

female (F=0.007, p= 0.322) and also between Malaysian and International students for conscientiousness (F=0.982, p=0.322). According to these results, there was no significant interaction between gender and groups for conscientiousness.

Bonferroni test was applied first to study the difference between Malaysian and International students for each gender separately and the results (Table 4-20) showed that the Neuroticism between Malaysian students and International student for both male and female students were not statistically different (p>0.05). Extroversion, Openness, Agreeableness, and Conscientiousness were not statistically different between Malaysian and International students for both genders.

Table 4.20: Pairwise comparison between Malaysian and International for both male and female NEO subscales

		Mean				
	Gender	**International**	**Malaysian**	**Mean Difference**	**SE**	**P value**
Neuroticism	Male	1.827	1.833	-.006	.055	.918
	Female	2.030	2.050	-.021	.056	.711
Extroversion	Male	2.403	2.365	.038	.052	.462
	Female	2.278	2.384	-.106*	.052	.044
Openness	Male	2.313	2.327	-.014	.036	.691
	Female	2.326	2.338	-.012	.037	.749
Agreeableness	Male	2.089	2.040	.049	.063	.438
	Female	2.217	2.176	.040	.064	.527
Conscientiousness	Male	2.519	2.501	.018	.060	.763
	Female	2.462	2.473	-.011	.061	.855

Table 4.21 illustrates the result of comparison between male and female students for both groups separately using family wise Bonferroni test. The results revealed that the Neuroticism and Agreeableness between male students and female students were statistically different in both Malaysian and International students (p<0.05). Extroversion was statistically different between International male and female students

but was not statistically different between Malaysian male and female. Openness and Conscientiousness between male students and female students were not statistically different in both Malaysian and International students (p>0.05).

Table 4.21: Pairwise comparison between male and female for both Malaysian and International students NEO

		Mean				
		Male	**Female**	**Mean Difference**	**SE**	**P value**
Neuroticism	International	1.827	2.030	-.202*	.0 7	<0.001
	Malaysian	1.833	2.050	-.217*	.054	<0.001
Extroversion	International	2.403	2.278	.125*	.054	.021
	Malaysian	2.365	2.384	-.019	.050	.708
Openness	International	2.313	2.326	-.014	.038	.721
	Malaysian	2.327	2.338	-.011	.035	.758
Agreeableness	International	2.089	2.217	-.128	.066	.051
	Malaysian	2.040	2.176	-.136*	.061	.026
Consciousness	International	2.519	2.462	.057	.063	.362
	Malaysian	2.501	2.473	.028	.058	.634

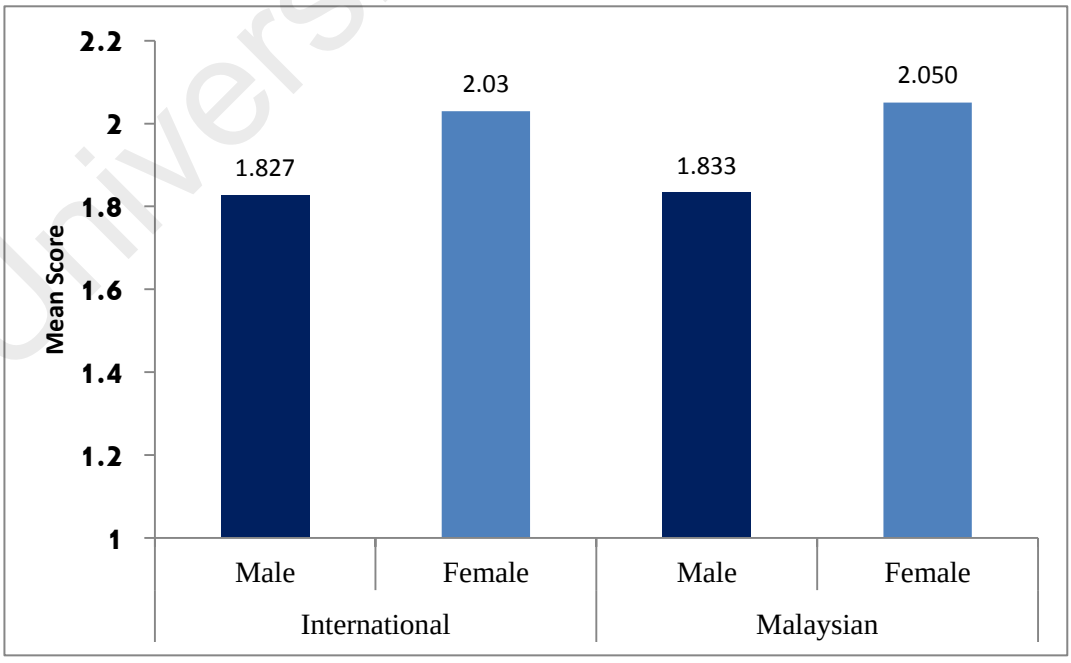

Figure 4.1: Estimated Marginal Means of Neuroticism

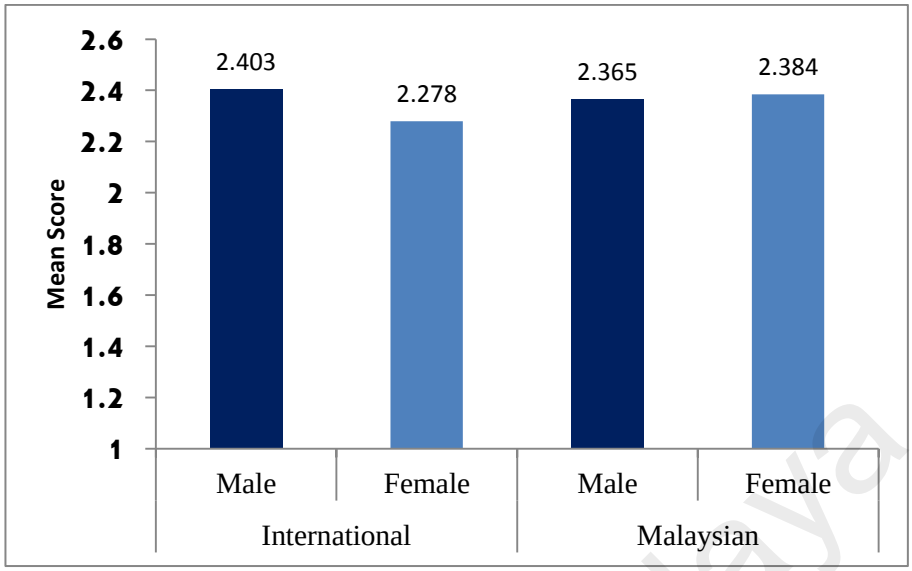

Figure 4.2: Estimated Marginal Means of Extroversion

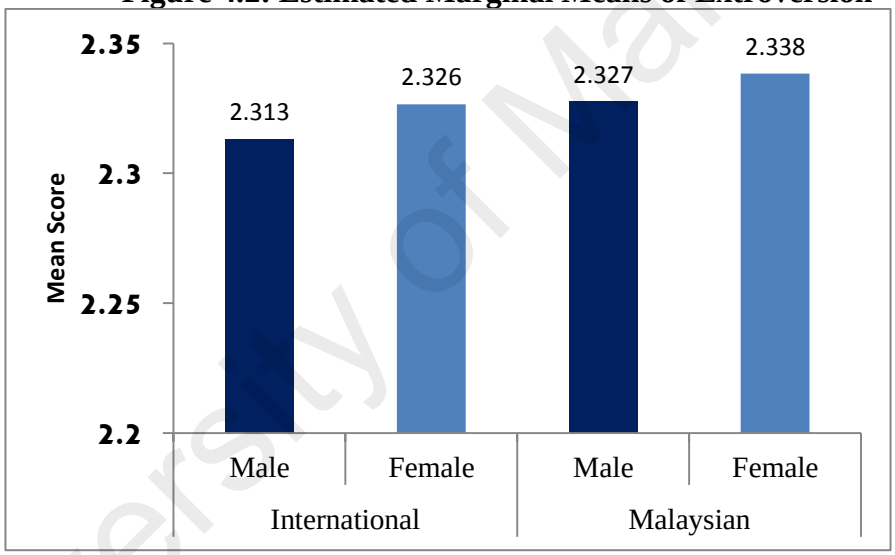

Figure 4.3: Estimated Marginal Means of Openness

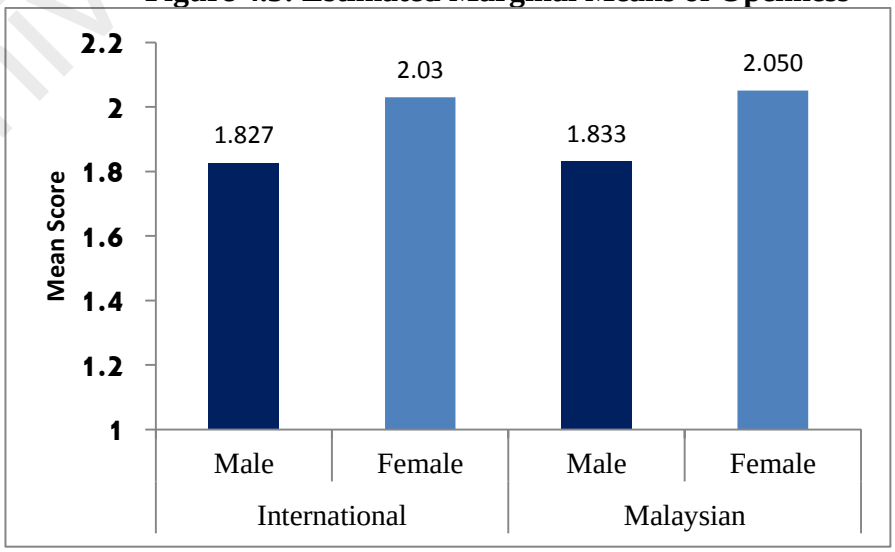

Figure 4.4: Estimated Marginal Means of Agreeableness

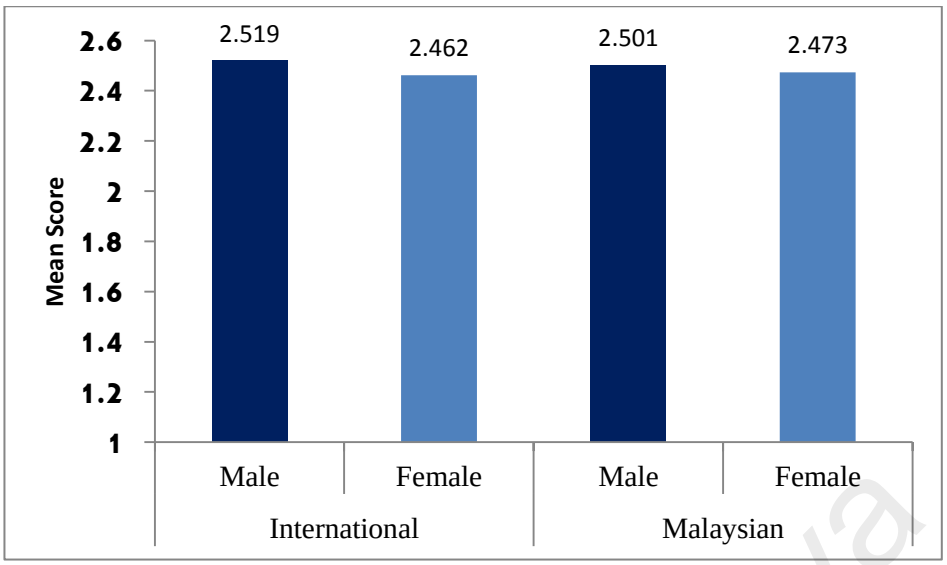

Figure 4.5: Estimated Marginal Means of Conscientiousness

4.4.1.2 Imposter Phenomenon

For imposter personality, the null hypotheses assumed that there are no significant differences in imposter personality traits and its dimension between Malaysian and International students by gender. The outcomes of two-way ANOVA on Luck showed that there was no significant difference between male and female (F= 2.614, p= 0.106) and there were no significant differences between Malaysian and International students for Luck (F=6.863, p=0.0). According to these results, there was no significant interaction between gender and groups for Luck. The discount was not significantly difference between male and female (F= 4.505, p= 0.034) and there were no significant differences between Malaysian and International students for Luck (F=1.352, p=0.245). According to these results, there was no significant interaction between gender and groups for Discount.

Fake showed that there was a significant difference between male and female (F= 13.882, p= 0.00) and there was no significant difference between Malaysian and International students for Fake (F=883, p=0.347). According to these results, there was

no significant interaction between gender and groups for Fake. Total imposter showed that there was a significant difference between male and female (F= 7.499, p= 0.006) and there were significant differences between Malaysian and International students for total Imposter (F=5.486, p=.019). According to these results, there was no significant interaction between gender and groups for total Imposter.

Table 4.22: Summary of Results of Two Way Anova for Imposter Subscales

	Source	df	MS	F	P value
Luck	Group	1	6.863	17.800	<0.001
	Gender	1	1.008	2.614	0.106
	Group * Gender	1	0.016	0.040	0.841
Discount	Group	1	0 432	1.520	0.245
	Gender	1	1.440	4.505	0.034
	Group * Gender	1	0.044	0.138	0.710
Fake	Group	1	0.339	0.883	0.348
	Gender	1	5.329	13.882	<0.001
	Group * Gender	1	0.062	0.162	0.688
Total Imposter	Group	1	1.655	5.486	0.019
	Gender	1	2.262	7.499	<0.001
	Group * Gender	1	0.001	0.003	0.958

Bonferroni test was applied first to study the difference between Malaysian and International students for each gender separately and the results (Table 4.23) showed that the Luck between Malaysian students and International student for both male and female students were statistically different ($p<0.05$). Discount was not statistically different between Malaysian students and International student for both male and female students ($p>0.05$). Fake were not statistically different between Malaysian students and International student for both male and female students ($p>0.05$). Total Imposter was statistically different between Malaysian students for male students ($p<0.05$) while it was not the statistically difference between Malaysian and International student for female students ($p>0.05$).

Table 4.23: Pairwise Comparison between Malaysian and International for both Male and Female

		Mean				
	Gender	**International**	**Malaysian**	**Mea Difference**	**SE**	**P value**
Luck	Male	2. 27	2.930	-.203*	.064	.002
	Female	2.810	2.995	-.184*	.065	.005
Discount	Male	2.629	2.694	-.064	.059	.275
	Female	2.734	2.767	-.033	.060	.579
Fake	Male	3.146	3.170	-.025	.064	.702
	Female	3.298	3.359	-.061	.065	.347
Total Imposter	Male	2.834	2.931	-.097	.057	.088
	Female	2.947	3.040	-.093	.058	.108

Table 4.24 illustrates the result of comparison between male and female students for both groups separately using family wise Bonferroni test and the results revealed that the Luck, Discount, Fake, and Total Imposter between male students and female students was statistically different in both Malaysian and International students ($p<0.05$).

Table 4.24: Pairwise Comparison between Male and Female for both Malaysian and International Students

		Mean				
		Male	**Female**	**Mean Difference**	**SE**	**P value**
Luck	International	2.727	2.810	-.083	.067	.214
	Malaysian	2.930	2.995	-.065	.063	.300
Discount	International	2.629	2.734	-.104	.061	.088
	Malaysian	2.694	2.767	-.073	.057	.200
Fake	International	3.146	3.298	-.152*	.067	.023
	Malaysian	3.170	3.359	-.189*	.062	.003
Total Imposter	International	2.834	2.947	-.113	.059	.057
	Malaysian	2.931	3.040	-.109*	.055	.049

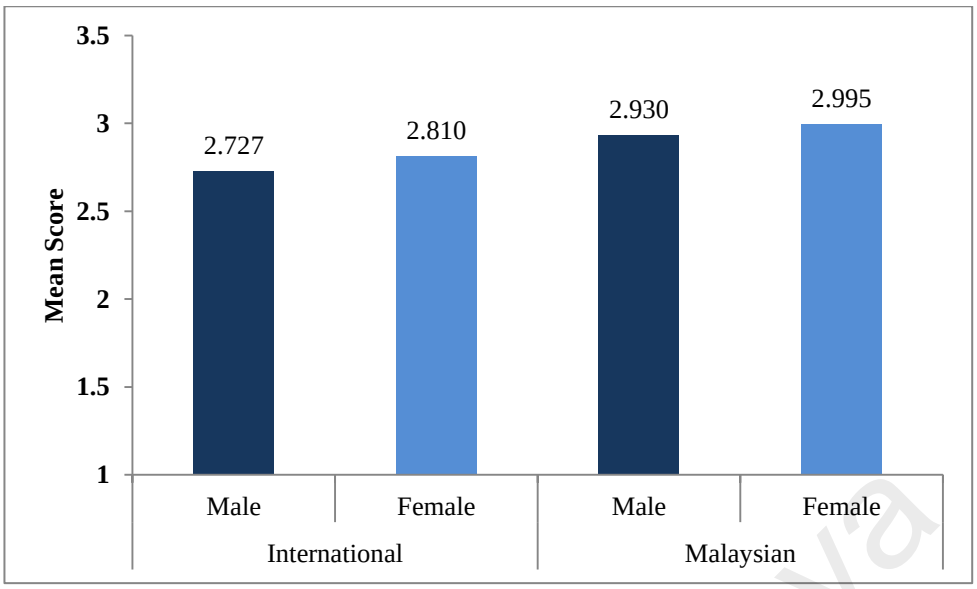

Figure 4.6: Estimated Marginal Means of Luck

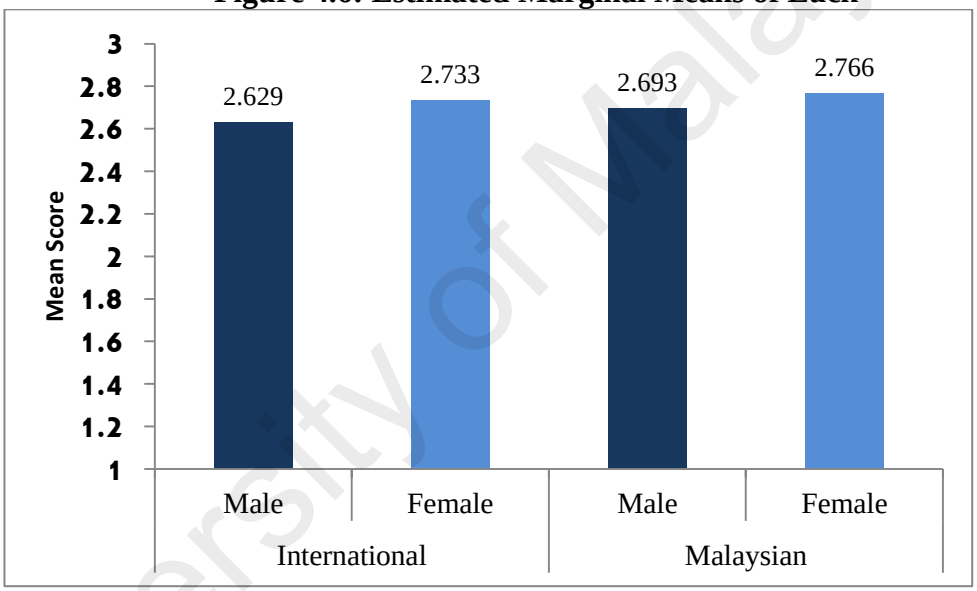

Figure 4.7: Estimated Marginal Means of Discount

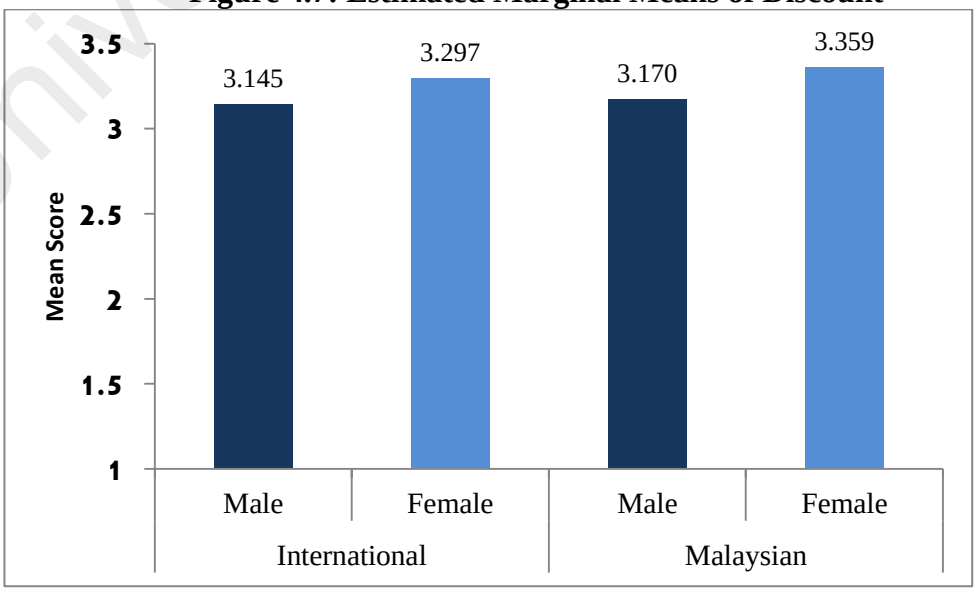

Figure 4.8: Estimated Marginal Means of Fake

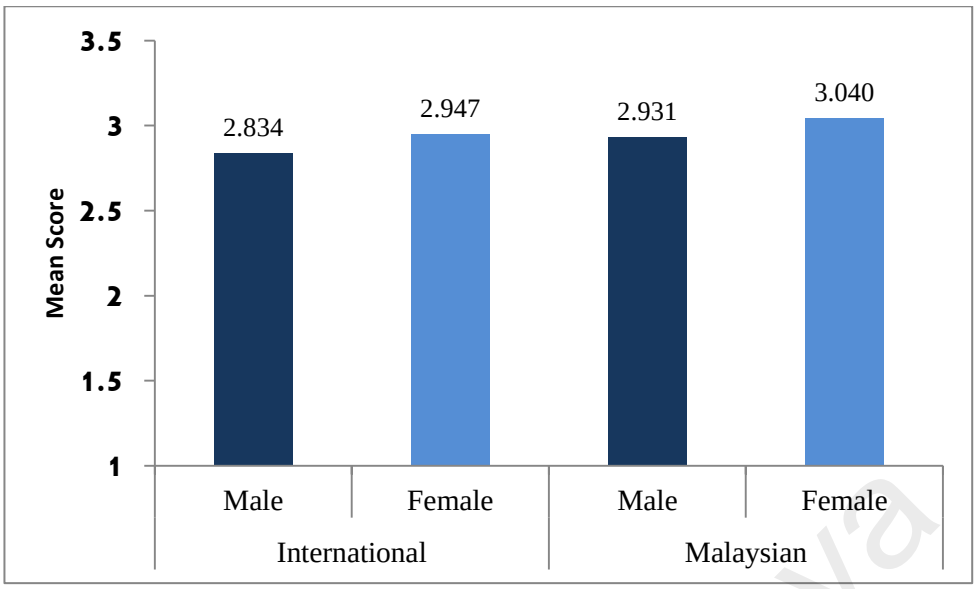

Figure 4.9: Estimated Marginal Means of Total Imposter

4.4.1.3 Machiavellian

For Machiavellian personality, the null hypotheses assumed that there are no significant differences in Machiavellian personality traits and its dimension between Malaysian and International students by gender. The outcomes of two-way ANOVA on Positive View of Human Nature showed that there was no significant difference between male and female (F= 0.02, p= 0.887) while there were significant differences between Malaysian and International students for 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 Human Nature.

Cynical View Human Nature was not significantly difference between male and female (F= 1.425, p= 0.233) while there were significant differences between Malaysian and International students for Cynical View Human Nature (F=4.42, p=0.036). According to these results, there was no significant interaction between gender and groups for Cynical View Human Nature. Positive interpersonal Tactics showed that

there was no significant difference between male and female (F=0.058, p= 0.809) and between Malaysian and International students for Positive interpersonal Tactics (F=0.865, p=0.353). According to these results, there was no significant interaction between gender and groups for Positive interpersonal Tactics. Negative interpersonal tactics showed that there was no significant difference between male and female (F= 0.201, p= 0. 654) and between Malaysian and International students for Positive interpersonal Tactics (F=1.881, p=0.177). According to these results, there was no significant interaction between gender and groups for Negative interpersonal tactics. Total Machiavellian showed that there was no significant difference between male and female (F= 0.566, p= 0.452) and between Malaysian and International students for total Machiavellian (F=0.299, p=0.584). According to these results, there was no significant interaction between gender and groups for total Machiavellian.

Table 4.25: 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

Bonferroni test was applied first to study the difference between Malaysian and International students for each gender separately and the results (Table 4.26) showed that the Positive View Human Nature between Malaysian students and International student for male students statistically different ($p<0.05$) while not statistically different for female students. Cynical View Human Nature was not statistically different between Malaysian and International student for both male and female ($p>0.05$). Positive interpersonal Tactics were not statistically different between Malaysian students and International student for both male and female students ($p>0.05$). Negative interpersonal tactics were not statistically different between Malaysian students and International student for both male and female students ($p>0.05$). Total Machiavellian were statistically different between Malaysian students for male students ($p<0.05$) while it was not the statistically difference between Malaysian and International student for female students ($p>0.05$).

Table 4.26: Pairwise Comparison between Malaysian and International for both Male and Female

		Mean				
	Gender	**International**	**Malaysian**	**Mean Difference**	**SE**	**P value**
Positive View of Human Nature	Male	2.3584	2.4719	.114*	0.038	0. 03
	Female	2.3979	2.4402	-0.042	0.039	0.274
Cynical View of Human Nature	Male	2.9167	3.0131	-0.096	0.05	0.053
	Female	2.9809	3.0335	-0.053	0.051	0.298
Positive Interpersonal Tactics	Male	3.2502	3.2521	-0.002	0.055	0.973
	Female	3.2251	3.2961	-0.071	0.056	0.204
Negative Interpersonal Tactics	Male	2.8434	2.7799	0.064	0.058	0.273
	Female	2.8541	2.8062	0.048	0.059	0.416
Total Machiavellian	Male	3.2632	3.265	-0.002	0.046	0.968
	Female	3.2718	3.306	-0.034	0.047	0.466

Table 4.27 illustrates the result of comparison between male and female students for both groups separately by using family wise Bonferroni test. The results revealed that the Positive View of Human Nature, Cynical View of Human Nature, Positive interpersonal Tactics, Negative interpersonal tactics and Total Machiavellian male students and female students were not statistically different in both Malaysian and International students ($p>0.05$).

Table 4.27: Pairwise Comparison between Male and Female for both Malaysian and International Students

		Mean				
		Male	**Female**	**Mean Difference**	**SE**	**P value**
Positive View of Human Nature	International	2.3584	2.3979	-0.039	0.040	0. 21
	Malaysian	2.4719	2.4402	0.032	0.037	0.393
Cynical View of Human Nature	International	2.9167	2.9809	-0.064	0.052	0.215
	Malaysian	3.0131	3.0335	-0.02	0.048	0.674
Positive Interpersonal Tactics	International	3.2502	3.2251	0.025	0.057	0.661
	Malaysian	3.2521	3.2961	-0.044	0.053	0.41
Negative Interpersonal Tactics	International	2.8434	2.8541	-0.011	0.06	0.859
	Malaysian	2.7799	2.8062	-0.026	0.056	0.641
Total Machiavellian	International	3.2632	3.2718	-0.009	0.048	0.858
	Malaysian	3.265	3.306	-0.041	0.045	0.362

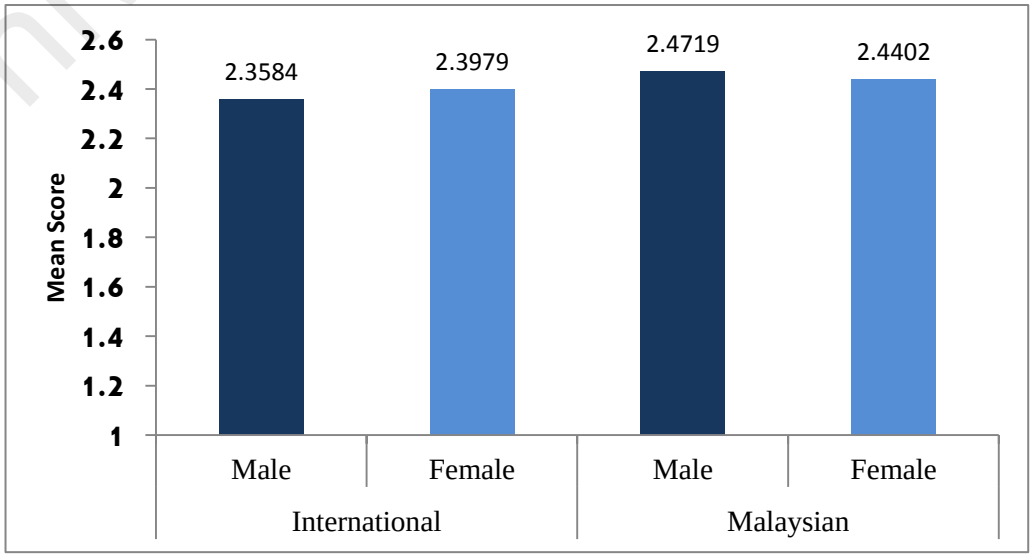

Figure 4.10: Estimated Marginal Means of Positive View of Human Nature

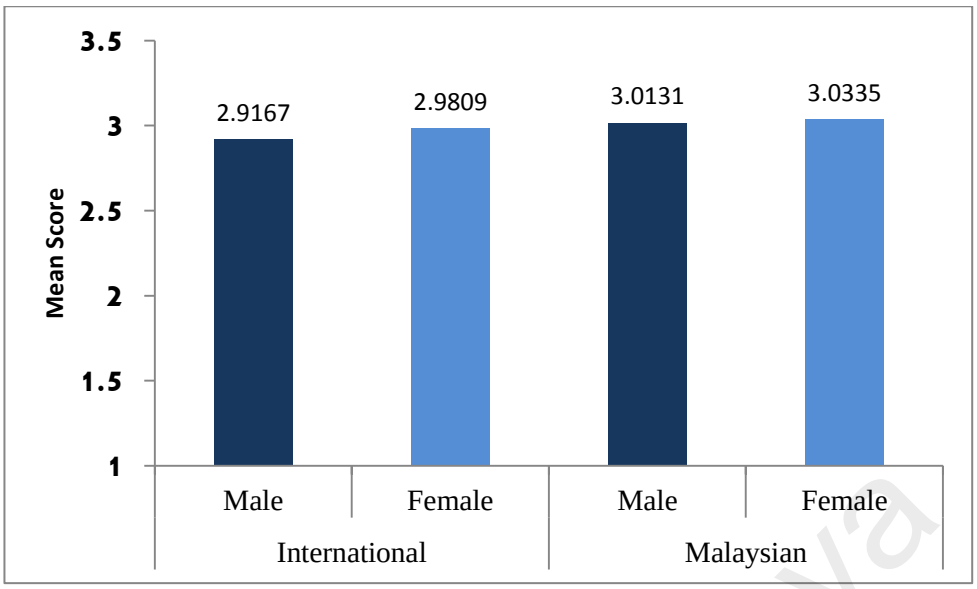

Figure 4.11: Estimated Marginal Means of Cynical View of Human Nature

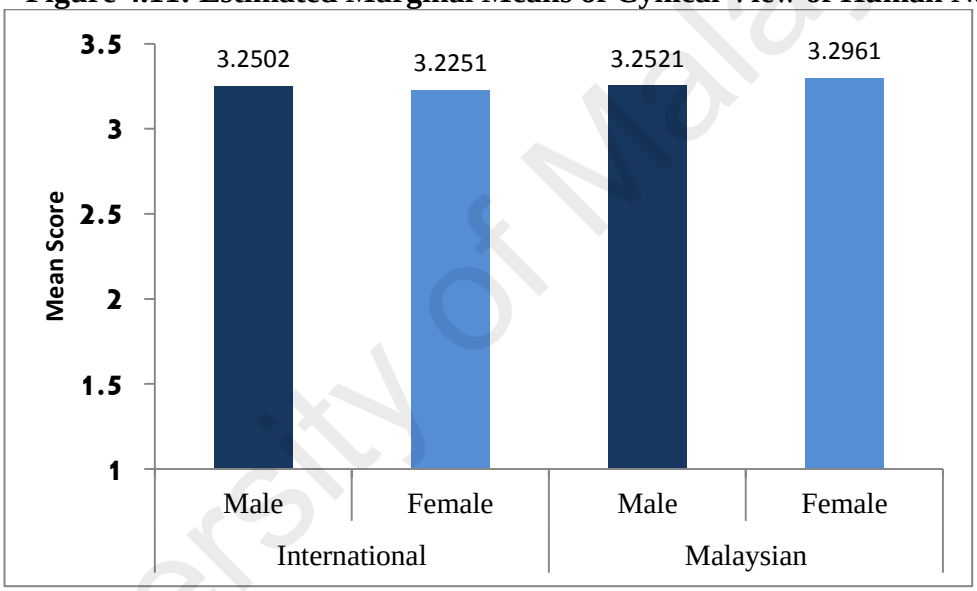

Figure 4.12: Estimated Marginal Means of Positive Interpersonal Tactic

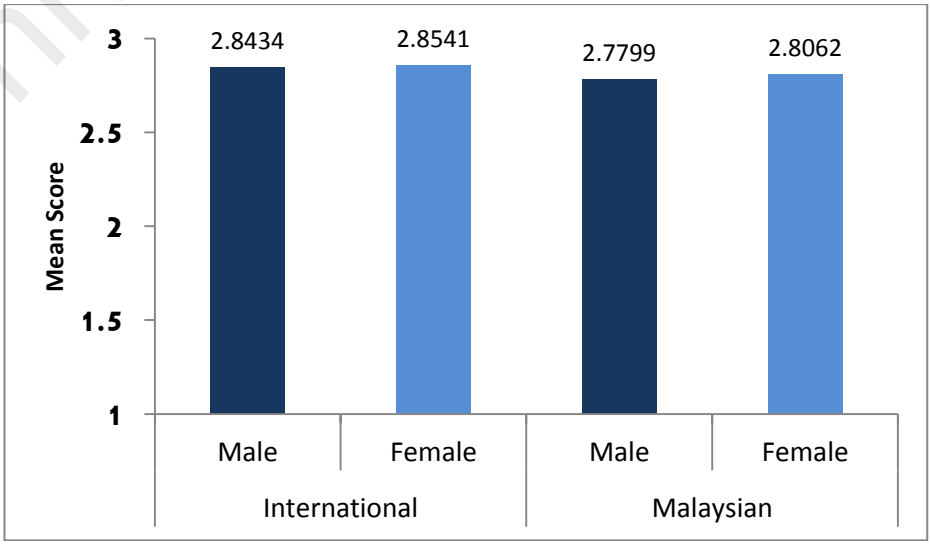

Figure 4.13: Estimated Marginal Means of Negative Interpersonal Tactic

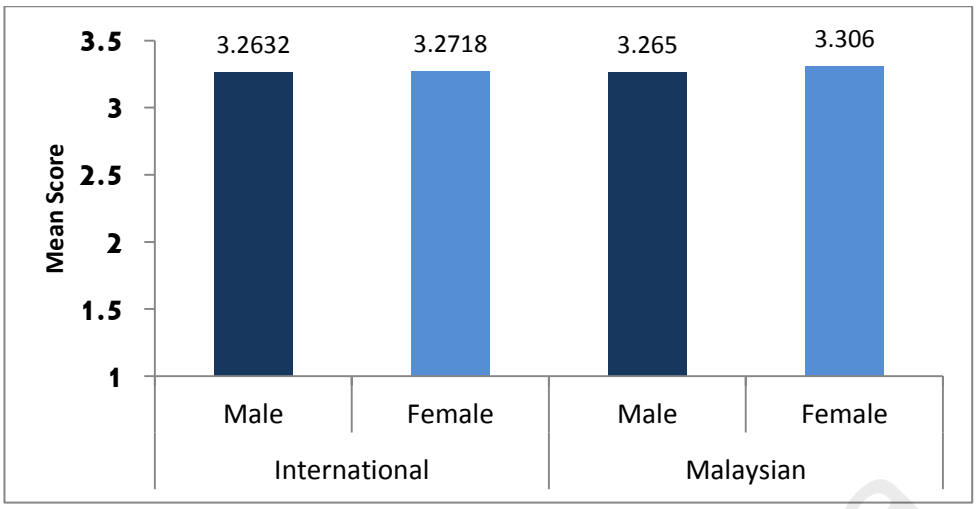

Figure 4.14: Estimated Marginal Means of Total Machiavellian

4.4.1.4 Mental Health

For mental health, the null hypotheses assumed that there are no significant differences in the mental health among Malaysian and International students by gender. The outcomes of two-way ANOVA on Somatization showed that there was a significant difference between male and female (F= 16.698, p= 0.000) and there were no significant differences between Malaysian and International students for Luck (F=2.654, p=0.104). According to these results, there was no significant interaction between gender and groups for Somatization.

Depression was a significant difference between male and female (F= 8.849, p= .003) and there were no significant differences between Malaysian and International students for Depression (F=2.871, p=0.091). According to these results, there was no significant interaction between gender and groups for Depression. Anxiety showed that there was a significant difference between male and female (F= 17.196, p= 0.00) and there were no significant differences between Malaysian and International students for

Anxiety (F=0.000, p=.995). According to these results, there was no significant interaction between gender and groups for Anxiety.

Social Dysfunction showed that there was a significant difference between male and female (F= 4.243, p= 0.040) and there were no significant differences between Malaysian and International students for Social Dysfunction (F=1.191, p=0. .275). According to these results, there was no significant interaction between gender and groups for Social Dysfunction. Total GHQ showed that there was a significant difference between male and female (F= 17.841, p= 0.00) and there were no significant differences between Malaysian and International students for Total GHQ (F=.231, p=0. .631). According to these results, there was no significant interaction between gender and groups for Total GHQ.

Table 4.28: Summary of Results of Two Way Anova for GHQ Subscales

	Source	df	MS	F	P value
Somatization	Group	1	1.064	2.654	.104
	Gender	1	6.694	16.698	<0.001
	Group * Gender	1	.005	.012	.913
Depression	Group	1	1.543	2.871	.091
	Gender	1	4.756	8.849	.003
	Group*Gender	1	.013	.025	.875
Anxiety	Group	1	.000	.000	.995
	Gender	1	8.109	17.196	.000
	Group*Gender	1	.029	.061	.805
Social Dysfunction	Group	1	.332	1.191	.275
	Gender	1	1.181	4.243	.040
	Group*Gender	1	.058	.209	.647
Total GHQ	Group	1	.064	.231	.631
	Gender	1	4.966	17.841	<0.001
	Group*Gender	1	.023	.084	.772

Bonferroni test was applied first to study the difference between Malaysian and International students for each gender separately and the results (Table 4.29) showed that the Somatization between Malaysian students and International student for both male and female students was not statistically different ($p>0.05$). Depression was not statistically different between Malaysian students and International student for both male and female students ($p>0.05$). Anxiety was not statistically different between Malaysian students and International student for both male and female students ($p>0.05$). Social Dysfunction was not statistically different between Malaysian students and International student for both male and female students ($p>0.05$). Total GHQ was not statistically different between Malaysian students and International student for both male and female students ($p>0.05$).

Table 4.29: Pairwise Comparison between Malaysian and International for both Male and Female

		Mean				
	Gender	**International**	**Malaysian**	**Mean Difference**	**SE**	**P value**
Somatization	Male	1.272	1.353	-.081	.066	.216
	Female	1.468	1.5 9	-.071	.067	.287
Depression	Male	1.078	0.977	.100	.076	.187
	Female	1.230	1.147	.083	.077	.281
Anxiety	Male	1.415	1.415	.012	.071	.864
	Female	1.415	1.626	-.013	.072	.859
Social Dysfunction	Male	1.478	1.418	.060	.055	.270
	Female	1.541	1.516	.025	.056	.657
Total GHQ	Male	1.358	1.328	.030	.055	.583
	Female	1.511	1.504	.007	.056	.894

Table 4.30 illustrates the result of comparison between male and female students for both groups separately using family wise Bonferroni test and the results revealed that the Somatization, Depression, Anxiety, Social Dysfunction, and total GHQ between

male students and female students was statistically different in both Malaysian and International students (p>0.05).

Table 4.30: Pairwise Comparison between Male and Female for both Malaysian and International Students

		Mean				
		Male	**Female**	**Mean Difference**	**SE**	**P value**
Somatization	International	1.272	1.468	-.196*	0.068	0.004
	Malaysian	1.353	1.539	-.186*	0.064	0.004
Depression	International	1.078	1.230	-.153	0.079	0.050
	Malaysian	0.977	1.147	-.170*	0.074	0.022
Anxiety	International	1.415	1.613	-.198*	0.074	0.008
	Malaysian	1.415	1.626	-.223*	0.069	0.001
Social Dysfunction	International	1.478	1.541	-.062	0.057	0.274
	Malaysian	1.418	1.516	-.098	0.053	0.065
Total GHQ	International	1.358	1.511	-.153*	0.057	0.007
	Malaysian	1.328	1.504	-.176*	0.053	0.001

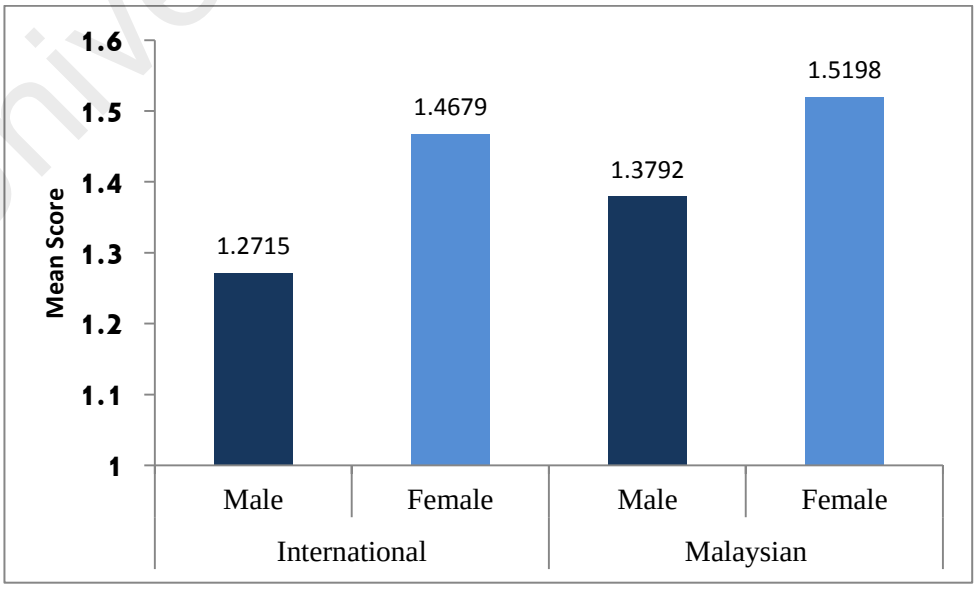

Figure 4.15: Estimated Marginal Means of Somatization

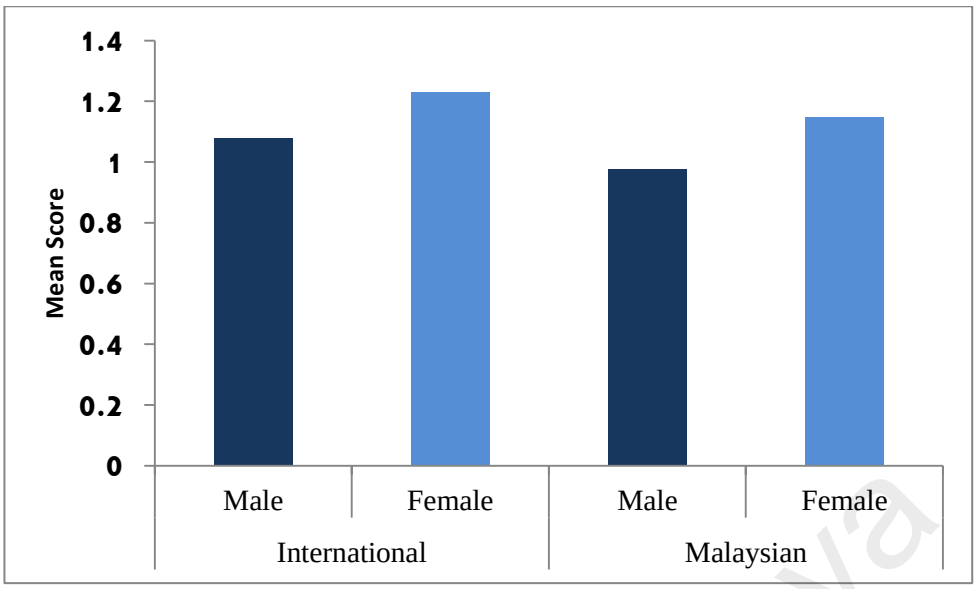

Figure 4.16: Estimated Marginal Means of Depression

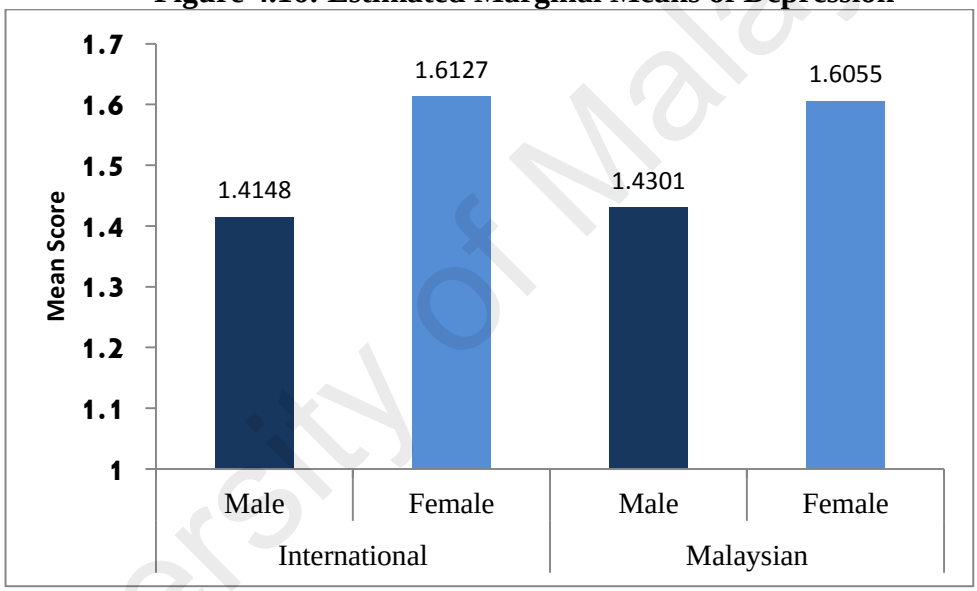

Figure 4.17: Estimated Marginal Means of Anxiety

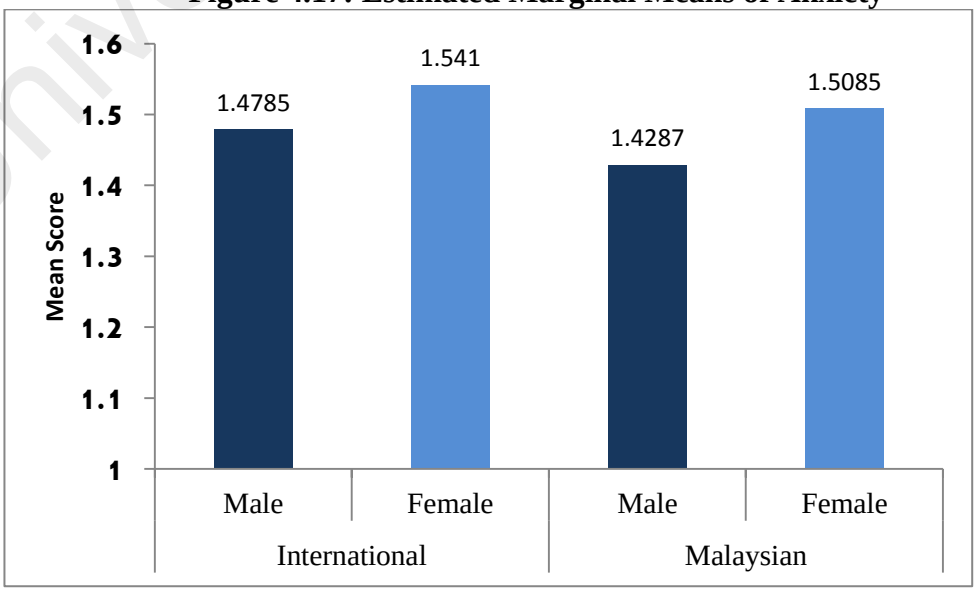

Figure 4.18: Estimated Marginal Means of Social Dysfunction

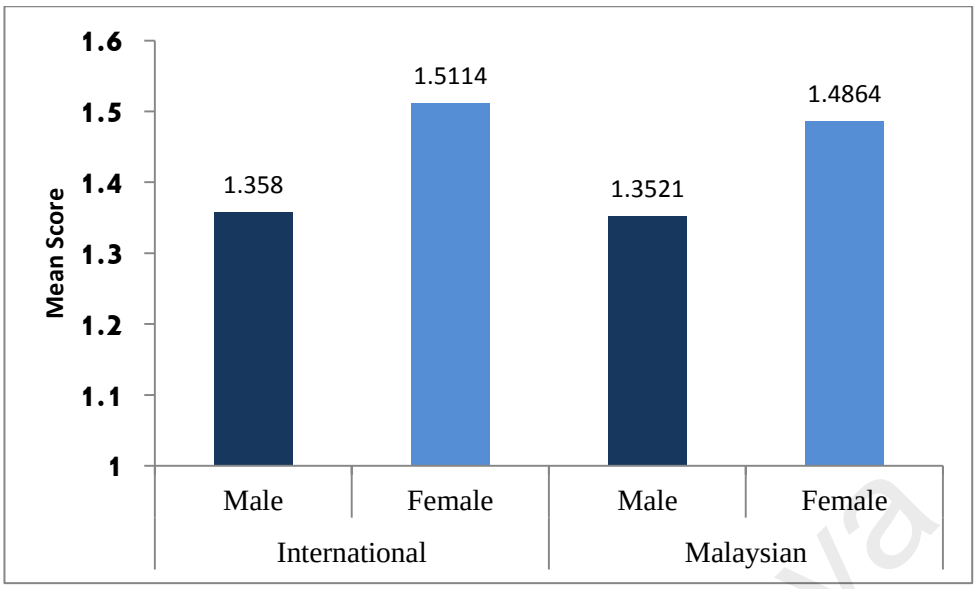

Figure 4.19: Estimated Marginal Means of Total GHQ

4.4.2 The Relationship between Personality Traits and Mental Health

Pearson's product moment correlations were performed to examine the presence of bivariate linear relationships and also to determine the significant relationships between the two variables. The correlation helps to clarify how the variables are related in strength and magnitude. The Pearson correlation coefficient, r, will be utilized for measurement of the extent of the linear relationship. Pearson r can take on only values from -1 to +1. This study used the Guilford and Fruchter (1973) rule of thumb to determine the strength of the relationship between variables. The p-value was set at .05 in these analyses. In this study, Pearson Correlation Test was used to examine the relationship between independent variables (Big Five personality Dimension which include: neuroticism, extroversion, openness, agreeableness, and conscientious; Imposter phenomenon, and Machiavellian traits) as well as demographic characteristics contain age, gender, and level of education. The dependent variable was mental health in this study. Table 4.39 shows the criteria for interpreting the strength of the relationship between two variables.

Table 4.31: Criteria for interpreting strength of relationship between two variables

r	Strength of Relationship
<.20	Slight relationship
.20-.40	Low correlation, definite but small
.40-.70	Moderate correlation, substantial relationship
.70-.90	High correlation, marked relationship
>.90	Very high correlation, very dependable relationship

Source: Guildford Rule of Thumb (1973)

4.4.2.1 The Relationship between Big Five Personality and Imposter

The null hypothesis assumed there is no relationship between Big Five personality dimension and imposter phenomenon and its sub-scales. The correlations between big five (neuroticism, extroversion, openness, agreeableness, conscientiousness) and an imposter (luck, discount, fake, and total imposter) among international students are presented in Table 4.32. Pearson product-moment correlation coefficient analyses showed that there is a significant strong correlation between neuroticism and discount, luck, fake, and a total imposter (P<0.001). Meanwhile, diverse correlations have observed between agreeableness and fake, discount, and total imposter.

Table 4.32: Correlation between Big Five and Imposter among International Students

	Discount	Luck	Fake	Total IP
Neuroticism	.367**	.415**	.511**	.473**
Extroversion	-0.073	-0.053	-0.075	-0.073
Openness	0.026	-0.007	0.046	0.023
Agreeableness	-.126*	-0.049	-.136*	-.112*
Conscientiousness	-0.079	0.02	-0.056	-0.04

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The correlations between big five (neuroticism, extroversion, openness, agreeableness, conscientiousness) and an imposter (luck, discount, fake, and total imposter) among Malaysian students are presented in Table 4.33. Pearson product-moment correlation coefficient analyses showed that there is a significant strong correlation between neuroticism and discount, luck, fake, and a total imposter ($P<0.001$). There are significant positive correlations between extroversion discount, luck, fake, and total imposter.

Table 4.33: Correlation between Big Five and Imposter among Malaysian Students

	Discount	Luck	Fake	Total IP
Neuroticism	.260**	.312**	.378**	.350**
Extroversion	.106*	.127*	.104*	.123*
Openness	0.039	-0.02	0.063	0.031
Agreeableness	0.005	-0.049	-0.018	-0.022
Conscientiousness	0.046	0.047	0.025	0.042

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.4.2.2 The Relationship between Big Five Personality and Machiavellian

The null hypothesis assumed there is no relationship between Big Five personality dimension and Machiavellian traits and its sub-scales. The correlations between big five (neuroticism, extroversion, openness, agreeableness, conscientiousness) and Machiavellian (Positive View Human Nature, Cynical View Human Nature, Positive Interpersonal Tactics, Negative Interpersonal Tactics, and Total Machiavellian) among international students are presented in Table 4.34. Pearson product-moment correlation coefficient analyses have shown that there are a

significantly strong correlation between Neuroticism with Positive View Human Nature, Cynical View of Human Nature, Negative Interpersonal Tactics, and Total Machiavellian (P<0.001). There is a significant strong correlation between Extroversion with Positive View Human Nature, Cynical View Human Nature, Positive Interpersonal Tactics, and Negative Interpersonal Tactics (P<0.001). There is a significant strong correlation between Openness and Positive View Human Nature, Cynical View Human Nature, Positive Interpersonal Tactics, and Negative Interpersonal Tactics (P<0.001). There is a significant strong correlation between Conscientiousness and Positive View Human Nature, Cynical View Human Nature, and Positive Interpersonal Tactics (P<0.001).

Table 4.34: Correlation between Big Five and Machiavellian among International Students

	PVHN	CVHN	PIT	NIT	Total Mach
Neuroticism	.154**	.277**	0.092	.133*	.239**
Extroversion	.124*	.135*	.207**	.165**	0.074
Openness	.235**	.22 **	.203**	.157**	0.081
Agreeableness	0.028	0.065	-0.091	0.008	-0.069
Conscientiousness	.248**	.147**	.321**	0.056	0.076

Positive View Human Nature, Cynical View Human Nature, Positive Interpersonal Tactics, Negative Interpersonal Tactics

Among Malaysian students, the Pearson product-moment correlation coefficient analyses have shown that there is a significant correlation between Neuroticism with Cynical View of Human Nature, Negative Interpersonal Tactics, and Total Machiavellian. There is a significant correlation between Extroversion with Positive View Human Nature, Cynical View Human Nature, Positive Interpersonal Tactics, and Negative Interpersonal Tactics, and Total Machiavellian (P<0.001). There is a significant strong correlation between Openness and Positive View Human Nature,

Cynical View Human Nature, Positive Interpersonal Tactics, and Negative Interpersonal Tactics (P<0.001). There is a significant strong correlation between Conscientiousness with Positive View Human Nature, Cynical View Human Nature, and Positive Interpersonal Tactics (Table 4.35).

Table 4.35: Correlation between Big Five and Machiavellian among Malaysian Students

	PVHN	CVHN	PIT	NIT	Total Mach
Neuroticism	0.002	.295**	0.005	.2 7**	.236**
Extroversion	.203**	.263**	.286**	.276**	.195**
Openness	.191**	.112	.306**	.115*	0.039
Agreeableness	0.005	0.075	0.001	0.069	0.043
Conscientiousness	.239**	.156**	.365**	.139**	0.037

Positive View Human Nature, Cynical View Human Nature, Positive Interpersonal Tactics, Negative Interpersonal Tactics

4.4.2.3 The Relationship between Mental Health and Machiavellian

The null hypothesis assumed there is no Relationship between Mental Health and Machiavellian Traits and its sub-scales. The correlations between Mental Health (Somatization, Depression, Anxiety, Social dysfunction) and Machiavellian (Positive View Human Nature, Cynical View Human Nature, Positive Interpersonal Tactics, Negative Interpersonal Tactics, and Total Machiavellian) among international students are presented in Table 4.36. Pearson product-moment correlation coefficient analyses have shown that there is a significant positive correlation between Social Dysfunction, Somatization, Depression, Anxiety and Total mental health with Total Machiavellian (P<0.001).

Table 4.36: Correlation between Mental Health and Machiavellian among International Students

	PVHN	CVHN	PIT	N IT	Total Mach
Social Dysfunction	0 005	0.072	.031	0.064	133
Somatization	0.044	.159**	-.043	0.051	.203**
Depression	0.103	.271**	-.065	.120*	.202**
Anxiety	0.061	.136**	-.016	0.06	.194**
Total GHQ	0.058	.191**	-.034	0.075	.220**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Positive of View Human Nature, Cynical View of Human Nature, Positive Interpersonal Tactics, Negative Interpersonal Tactics,

The correlations between Mental Health (Somatization, Depression, Anxiety, Social dysfunction) and Machiavellian (Positive View Human Nature, Cynical View Human Nature, Positive Interpersonal Tactics, Negative Interpersonal Tactics, and Total Machiavellian) among Malaysian students are presented in Table 4.37. Pearson product-moment correlation coefficient analyses have shown that there is a significant positive correlation between Somatization, Anxiety, and Total mental health with Total Machiavellian ($P<0.001$).

Table 4.37: Correlation between Mental Health and Machiavellian among Malaysian Students

	PVHN	CVHN	PIT	N IT	Total Mach
Social Dysfunction	-0.091	-0.008	-0.100*	-0.007	0.027
Somatization	-0.029	0.120*	-0.153**	0.139**	0.113*
Depression	-0.140**	0.061	-0.297**	0.066	0.031
Anxiety	-0.081	0.131**	-0.145**	0.169**	0.146**
Total GHQ	-0.104*	0.097	-0.221**	.0114*	0.103*

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Positive of View Human Nature, Cynical View of Human Nature, Positive Interpersonal Tactics, Negative Interpersonal Tactics,

4.4.2.4 The Relationship between Mental Health and Imposter

The null hypothesis assumed there is no relationship between mental health and imposter traits and its sub-scales**.** The correlations between Mental Health (Somatization, Depression, Anxiety, Social dysfunction) and Imposter (Discount, Luck, Fake, a Total imposter) among international students are presented in Table 4.38. Pearson product-moment correlation coefficient analyses have shown that there is a significant strong correlation between Social Dysfunction with Discount, Luck, Fake, and a Total imposter (P<0.001). There is a significant strong correlation between Somatization with Discount, Luck, Fake, and a Total imposter (P<0.001). There is a significant strong correlation between Depression with Discount, Luck, Fake, and a Total imposter (P<0.001). There is a significant strong correlation between Anxiety with Discount, Luck, Fake, and a Total imposter (P<0.001). There is a significant strong correlation between Total Mental Health with Discount, Luck, Fake, and a Total imposter (P<0.001).

Table 4.38: Correlation between Mental Health and Imposter among International Students

	Discount	Luck	Fake	Total IP
Social Dysfunction	.195**	.225**	.243**	.243**
Somatization	.182**	.290**	.297**	.283**
Depression	.237**	.354 *	.357**	.348**
Anxiety	.300**	.361**	.394**	.386**
Total GHQ	.275**	.375**	.394**	.384**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

IP, Imposter

The correlations between Mental Health (Somatization, Depression, Anxiety, Social dysfunction) and Imposter (Discount, Luck, Fake, a Total imposter) among

Malaysian students are presented in Table 4.39. Pearson product-moment correlation coefficient analyses have shown that there is a significant positive correlation between Social Dysfunction with Fake (P<0.001). There is a significant strong correlation between Somatization with Discount, Luck, Fake, and a Total imposter (P<0.001). There is a significant strong correlation between Depression with Discount, Luck, Fake, and a Total imposter (P<0.001). There is a significant strong correlation between Anxiety with Discount, Luck, Fake, and a Total imposter (P<0.001). There is a significant strong correlation between Total Mental Health with Discount, Luck, Fake, and a Total imposter (P<0.001).

Table 4.39: Correlation between Mental Health and Imposter among Malaysian Students

	Discount	Luck	Fake	Total IP
Social Dysfunction	0.022	0.077	.105*	0.07
Somatization	.157**	.204**	.213**	.211**
Depression	.104*	.175**	.174**	.167**
Anxiety	.231**	.227**	.307**	.282**
Total GHQ	.164**	.219**	.251**	.234**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

IP, Imposter

4.4.2.5 The Relationship between Mental Health and Big Five

The null hypothesis assumed there is no relationship between mental health and Big Five personality traits and its sub-scales. The correlations between Mental Health (Somatization, Depression, Anxiety, Social dysfunction) and Big Five (Neuroticism, Extroversion, Openness, Agreeableness, Conscientiousness) among international students are presented in Table 4.40. Pearson product-moment correlation coefficient analyses have shown that there is a significant strong correlation between Social

Dysfunction with Neuroticism, Agreeableness (P<0.001). There are a significant strong correlation between Somatization with Neuroticism, Agreeableness (P<0.001). There is a significant strong correlation between Depression with Neuroticism (P<0.001). There are a significant strong correlation between Anxiety with Neuroticism, Agreeableness (P<0.001). There is a significant strong correlation between Total Mental Health with Neuroticism and Agreeableness (P<0.001).

Table 4.40: Correlation between Mental Health and Big Five among International Students

	Neuroticism	Extroversion	Openness	Agreeableness	Conscientiousness
Social Dysfunction	.207**	0.059	-0.044	-.188**	-0.039
Somatization	.337**	-0.077	-0.053	-.108*	0.058
Depression	.450**	-0.072	0.032	-0.067	0.019
Anxiety	.392**	-0.084	-0.031	-.186**	-0.016
Total GHQ	.428**	-0.059	-0.036	-.166**	-0.001

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The correlations between Mental Health (Somatization, Depression, Anxiety, Social dysfunction) and Big Five (Neuroticism, Extroversion, Openness, Agreeableness, Conscientiousness) among Malaysian students are presented in Table 4.41. Pearson product-moment correlation coefficient analyses have shown that there is a significant strong correlation between Social Dysfunction with Extroversion (P<0.001). There is a significant strong correlation between Somatization with Neuroticism (P<0.001). There is a significant strong correlation between Depression with Neuroticism, Extroversion, and conscientiousness (P<0.001). There is a significant strong correlation between Anxiety with Neuroticism (P<0.001). There is a significant strong correlation between Total Mental Health with Neuroticism, Extroversion, and conscientiousness (P<0.001).

Table 4.41: Correlation between Mental Health and Big Five among Malaysian Students

	Neuroticism	Extroversion	Openness	Agreeableness	Conscientiousness
Social Dysfunction	.229**	-.139**	-0.057	-0.062	-0.075
Somatization	.315**	- .068	-0.034	-0.024	-0.064
Depression	.326**	-.153**	-0.09	0.087	-.119*
Anxiety	.360**	-0.05	-0.031	0.03	-0.049
Total GHQ	.386**	-.135**	-0.066	0.014	-.099*

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.5 Prediction of Mental Health by Personality

The null hypothesis assumed that the mental health cannot be assessed by knowing personality traits. To investigate about the main objective of this research multiple regressions was applied to examine what extent the proposed multiple linear regression models is supported by the research data. The regression examined how well the Mental Health scores could be predicted by determined Big Five, Imposter, and Machiavellian. In the multiple regression models, gender, age, nationality, the level of education, were set as confounding variables while neuroticism, extroversion, openness, agreeableness, conscientiousness, Machiavellian, and imposter were set as the independent variables and total mental health was considered as the dependent variable among international and Malaysian students. The adjusted R^2 were 0.288 in the international group and 0.225 in the local group which both acceptable for social science studies. Therefore, the regression equation appears to be useful for prediction of variation in students' mental health.

Table 4.42: Multiple Regression Model Summary among International and Malaysian Students

Group	Model	R	R Square	Adjusted R Square	SE	R Square Change	F Change	df1	df2	Sig. F Change
International	1	.280a	0.079	0.065	0.53991	0.079	5.599	5	328	<0.001
	2	.537b	0.288	0.261	0.4798	0.209	13.476	7	321	<0.001
Malaysian	1	.162d	0.026	0.014	0.50635	0.026	2.111	5	392	0.063
	2	.475e	0.225	0.201	0.45571	0.199	14.137	7	385	<0.001

a Predictors: (Constant), Level of Education, Gender, Age

b Predictors: (Constant), Level of Education, Gender, Age, Conscientiousness, Total Machiavellian , Agreeableness, Openness, Extroversion, Total Imposter, Neuroticism

d Predictors: (Constant),), Level of Education, Gender, Age

e Predictors: (Constant), Level of Education, Gender, Age, Conscientiousness, Agreeableness Total Machiavellian, Neuroticism, Openness, Total Imposter, Extroversion

Results from ANOVA table of multiple regressions analysis (Table 4.43) showed that the P value is less than 0.05 except the model 1 for Malaysian students that mean there is enough evidence to conclude that at least one of the independent variables can be used for predicting Mental Health.

Table 4.43: ANOVA for Multiple Regressions Model among International and Malaysian Students

Group	Model		Sum of Squares	df	Mean Square	F	P Value
International	1	Regression	8.161	5	1.632	5.599	<0.001
		Residual	95.614	328	0.292		
		Total	103.775	333			
	2	Regression	29.877	12	2.49	10.81	<0.001
		Residual	73.898	321	0.23		
		Total	103.775	333			
Malaysian	1	Regression	2.706	5	0.541	2.111	.063d
		Residual	100.506	392	0.256		
		Total	103.212	397			
	2	Regression	23.257	12	1.938	9.332	<0.001
		Residual	79.955	385	0.208		
		Total	103.212	397			

Results of regression coefficients among international students are presented in Table 4.44. According to these results, it was found that among all personality traits Neuroticism, Openness, Agreeableness and Total Imposter were significantly influence on mental health. The highest regression coefficient was observed for Neuroticism (β=0.266, P value <0.001) which showed this variable positively effect on Mental Health of international students. Total Imposter also positively influence on student's Mental health (β=0.202, P value <0.001). Openness (β=-0.171, P-value =0.048) and Agreeableness (β= -0.114, P-value =0.005) also negatively effect on mental health.

According to these results, there was no serious collinearity among independent variables and results indicated that VIF for all independent variables was less than five.

Table 4.44: Regression Coefficients of independent variables on Mental Health among International Students

IV	B	SE	Beta	t	P Value	Tolerance	VIF
(Constant)	0.674	0.367		1.838	0.067		
Age	0.001	0.005	0.013	0.243	0.809	0.748	1.338
Level Education	0.029	0.077	0.02	0.374	0.709	0.757	1.321
Gender	0.119	0.055	0.106	2.149	0.032	0.916	1.092
Religion	-0.097	0.029	-0.163	-3.302	0.001	0.915	1.093
Neuroticism	0.266	0.053	0.288	5.046	<0.001	0.683	1.465
Extroversion	-0.022	0.05	-0.022	-0.435	0.664	0.842	1.188
Openness	-0.171	0.086	-0.1	-1.982	0.048	0.872	1.146
Agreeableness	-0.114	0.04	-0.139	-2.855	0.005	0.936	1.068
Conscientiousness	0.021	0.043	0.024	0.48	0.632	0.87	1.15
Total Imposter	0.202	0.053	0.214	3.786	<0.001	0.697	1.434
Total Mach	0.055	0.065	0.044	0.85	0.396	0.835	1.198

Results of regression coefficients among Malaysian is presented in Table 4.45. According to these results, it was found that among all personality traits Neuroticism, Extroversion, and Total Imposter were significantly influence on the mental health of Malaysian students. The highest regression coefficient was observed for Neuroticism (β=0.403, P value <0.001) which showed this variable positively effect on Mental Health. Total Imposter also positively influence on student's Mental health (β=0.103, P value=0.049). Extroversion (β=0.282, P value<0.001) also negatively effect on mental health. According to these results, there was no serious collinearity among independent variables and results indicated that VIF for all independent variables was less than five.

Table 4.45: Regression Coefficients of independent variables on Mental Health among Malaysian Students

IV	B	SE	Beta	t	P Value	Tolerance	VIF
(Constant)	1.103	0.328		3.357	0.001		
Age	-0.01	0.005	-0.094	-1.922	0.055	0.848	1.179
Level Education	0.03	0.061	0.024	0.494	0.622	0.863	1.159
Gender	0.036	0.048	0.035	0.755	0.451	0.934	1.07
Religion	0.008	0.036	0.011	0.232	0.816	0.957	1.045
Neuroticism	0.403	0.053	0.382	7.556	<0.001	0.788	1.269
Extroversion	-0.282	0.066	-0.229	-4.295	<0.001	0.709	1.41
Openness	-0.077	0.067	-0.055	-1.153	0.25	0.873	1.146
Agreeableness	0.025	0.044	0.026	0.572	0.567	0.948	1.055
Conscientiousness	0.028	0.052	0.028	0.532	0.595	0.712	1.405
Total Imposter	0.103	0.052	0.101	1.974	0.049	0.776	1.289
Total Mach	0.01	0.055	0.009	0.183	0.855	0.851	1.175

4.6 Developing a Summarized Questionnaire for Personality Traits

According to the analysis of structural equation modelling (SEM)' loading factor, certain questions were considered in developing UM-PTQ (UM Personality Trait Questionnaire). Next, the selected questions were listed in a new form. The form was reviewed by a committee of eight experts with representation and recognition in the area of interest of this study.

Content validity analysis was used to evaluate the expert views in terms of clarity, representative, and relevance of the selected questions. In other words, a content validation certifies whether an instrument measures what is intended and verifies that the questions properly reflect the content domain of scale (Benson & Clark, 1982). The

content validity of the developed instrument was statistically analysed by a Content Validity Index (CVI). To calculate the CVI, each item was ranked on a four-point scale (1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, 4 = highly relevant). For each item, the CVI was calculated as the number of experts who provided a rank of 3 or 4, divided by the total number of experts. The Kappa Modified Coefficient was used to determine the degree of relevance agreement of the CVI and was calculated according to Polit et al. (2007). The first version of the instrument was developed with 35 items divided into seven domains: Neuroticism (5 items), Extroversion (5 items), Openness (5 items), Agreeableness (5 items), Conscientiousness (5 items), Machiavellian (5 items), and Imposter (5 items). In each domain, the content validity of the items (35 items) was evaluated separately. Table 4.46 to Table 4.52 illustrates the result of content validity index in this study.

According to CVI and Kappa value, all items in the Neuroticism domain obtained satisfactory scores. Therefore the items in this domain were maintained as the last version of the instrument (the domains were considered satisfactory CVI between 0.71- 1.00 and Kappa between 0.80-1.00). See Table 4.46.

Table 4.46: Content Validation of Neuroticism Domain

	Clarifying		**Relevance**		**Representative**		**Results**
Item	**CVI**	**kappa**	**CVI**	**kappa**	**CVI**	**kappa**	
N1	1.000	1.000	1.000	1.000	1.000	1.000	**Validated**
N2	1.000	1.000	0.875	0.871	1.000	1.000	**Validated**
N3	0.875	0.871	0.875	0.871	1.000	1.000	**Validated**
N4	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**
N5	0.875	0.871	0.875	0.871	1.000	1.000	**Validated**

According to CVI and Kappa value, all items in the Extroversion domain obtained satisfactory scores. Therefore the items in this domain were maintained as the last version of the instrument (the domains were considered satisfactory CVI between 0.71- 1.00 and Kappa between 0.80-1.00). See Table 4.47.

Table 4.47: Content Validation of Extroversion Domain

	Clarifying		Relevance		Representative		Results
Item	**CVI**	**kappa**	**CVI**	**kappa**	**CVI**	**kappa**	
E1	0.875	0.871	0.875	0.871	1.000	1.000	**Validated**
E2	1.000	1.000	1.000	1.000	1.000	1.000	**Validated**
E3	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**
E4	1.000	1.000	1.000	1.000	1.000	1.000	**Validated**
E5	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**

According to CVI and Kappa value, all items in the Openness domain obtained satisfactory scores. Therefore the items in this domain were maintained as the last version of the instrument (the domains were considered satisfactory CVI between 0.71-1.00 and Kappa between 0.80-1.00). See Table 4.48.

Table 4.48: Content Validation of Openness Domain

	Clarifying		Relevance		Representative		Results
Item	**CVI**	**kappa**	**CVI**	**kappa**	**CVI**	**kappa**	
O1	0.875	0.871	0.875	0.871	0.875	0.871	**Validated**
O2	0.875	0.871	0.875	0.871	1.000	1.000	**Validated**
O3	0.875	0.871	0.875	0.871	1.000	1.000	**Validated**
O4	1.000	1.000	1.000	1.000	1.000	1.000	**Validated**
O5	0.750	0.719	0.875	0.871	0.875	0.871	**Validated**

According to CVI and Kappa value, all items in the Agreeableness domain obtained satisfactory scores. Therefore the items in this domain were maintained as the last version of the instrument (the domains were considered satisfactory CVI between 0.71- 1.00 and Kappa between 0.80-1.00). See Table 4.49.

Table 4.49: Content Validation of Agreeableness Domain

	Clarifying		Relevance		Representative		Results
Item	**CVI**	**kappa**	**CVI**	**kappa**	**CVI**	**kappa**	
A1	0.875	0.871	0.875	0.871	1.000	1.000	**Validated**
A2	1.000	1.000	1.000	1.000	1.000	1.000	**Validated**
A3	1.000	1.000	1.000	1.000	1.000	1.000	**Validated**
A4	0.750	0.719	0.875	0.871	1.000	1.000	**Validated**
A5	0.875	0.871	0.875	0.871	1.000	1.000	**Validated**

According to CVI and Kappa value, all items in the Conscientiousness domain obtained satisfactory scores. Therefore the items in this domain were maintained as the last version of the instrument (the domains were considered satisfactory CVI between 0.71- 1.00 and Kappa between 0.80-1.00). See Table 4.50.

Table 4.50: Content Validation of Conscientiousness Domain

	Clarifying		Relevance		Representative		Results
Item	**CVI**	**kappa**	**CVI**	**kappa**	**CVI**	**kappa**	
C1	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**
C2	1.000	1.000	1.000	1.000	1.000	1.000	**Validated**
C3	1.000	1.000	1.000	1.000	1.000	1.000	**Validated**
C4	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**
C5	1.000	1.000	1.000	1.000	1.000	1.000	**Validated**

According to CVI and Kappa value, all items in the Imposter domain obtained satisfactory scores. Therefore the items in this domain were maintained as the last version of the instrument (the domains were considered satisfactory CVI between 0.71-1.00 and Kappa between 0.80-1.00). See Table 4.51.

Table 4.51: Content Validation of Imposter Domain

	Clarifying		Relevance		Representative		Results
Item	**CVI**	**kappa**	**CVI**	**kappa**	**CVI**	**kappa**	
IP1	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**
IP2	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**
IP3	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**
IP4	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**
IP5	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**

According to CVI and Kappa value, all items in the Machiavellian domain obtained satisfactory scores. Therefore the items in this domain were maintained as the last version of the instrument (the domains were considered satisfactory CVI between 0.71- 1.00 and Kappa between 0.80-1.00). See Table 4.52.

Table 4.52: Content Validation of Machiavellian Domain

	Clarifying		Relevance		Representative		Results
Item	**CVI**	**kappa**	**CVI**	**kappa**	**CVI**	**kappa**	
Mach1	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**
Mach2	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**
Mach3	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**
Mach4	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**
Mach5	0.875	0.871	1.000	1.000	1.000	1.000	**Validated**

4.6.1 Reliability of the instruments

For testing the reliability of the questionnaire, a Cronbach's Alpha test was implemented. Cronbach's alpha is the most common measure of internal consistency (reliability). The alpha for all items in all sub-dimensions was higher than 0.70, suggesting that all of the items are reliable and the entire instrument is internally consistent. Corrected Item-Total Correlation is the correlations between each item and the total score from the questionnaire. In a reliable scale, all items should have an acceptable correlation with the total. Items with a corrected Item-total correlation less than 0.3 with the overall score have to be on the scale. The reliability coefficients for different sections of Shortened Inventory pilot study are presented in Table 4.47. Therefore, based on the reliability alpha values of all the variables that were found greater than the standard of 0.70, the variables were reliable.

Table 4.53: Results of Reliability analysis for all sub-dimension of UM-PTQ

Dimension	Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha for Scale
Neuroticism	**NE0.26**	0.76	0.887	0.906
	NE0.36	0.722	0.894	
	NE0.41	0.801	0.877	
	NE0.51	0.791	0.881	
	NE0.56	0.755	0.887	
Extroversion	**NE0.22**	0.703	0.896	0.904
	NE0.37	0.823	0.869	
	NE0.42	0.816	0.870	
	NE0.47	0.723	0.892	
	NE0.52	0.746	0.886	
Openness	**NE0.13**	0.674	0.715	0.791
	NE0.18	0.538	0.761	
	NE0.23	0.519	0.767	
	NE0.38	0.564	0.753	
	NE0.43	0.55	0.757	
Agreeableness	**NE0.4**	0.81	0.896	0.916
	NE0.9	0.894	0.874	
	NE0.14	0.804	0.893	
	NE0.24	0.725	0.911	
	NE0.44	0.748	0.908	
Conscientiousness	**NE0.35**	0.766	0.908	0.921
	NE0.40	0.783	0.905	
	NE0.50	0.823	0.897	
	NE0.55	0.823	0.897	
	NE0.60	0.777	0.906	
Machiavellian	**MAK.7**	0.559	0.861	0.856
	MAK.5	0.829	0.781	
	MAK.10	0.625	0.838	
	MAK.18	0.819	0.798	
	MAK.19	0.584	0.847	
Imposter	**IMP.14**	0.695	0.864	0.883
	IMP.15	0.649	0.876	
	IMP.16	0.777	0.845	
	IMP.18	0.847	0.832	
	IMP.19	0.654	0.874	

4.6.2 Exploratory Factor Analysis

Exploratory Factor Analysis was applied to determine the factor structure among 35 items of combined UM Personality Trait Questionnaire (UM-PTQ). Several well-

known criteria for the factorability of a correlation were used. Firstly, the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.622, above the suggested value of .6, and Bartlett's test of sphericity was significant ($\chi 2$ (595) = 1666.734, $p < 0.05$). The diagonals of the anti-image correlation matrix were all over 0.5, supporting the inclusion of each item in the factor analysis. Initial communalities are estimates of the variance in each variable accounted for by all components and small values (<0.3) indicate variables that do not fit well with the factor solution. In the current study, all initial communalities were above the threshold. All loading factors were above 0.5 (see Appendix K).

The results of EFA on all 35 items extracted seven factors with eigenvalues greater than 1. The eigenvalues and total variance explained by the seven factors is shown in Table 4.48. Total seven components were extracted which explained 72.625% of the variance among data and the results after Varimax rotation showed that the first component which is related to "Conscientiousness" explained 11.44 % of the variance and the second important component was related to "Agreeableness" which was able to explain 11.29% of the variance. The third components included items of "Neuroticism" and results indicated that this factor explained 10.76% of variance followed by fourth component "Imposter" by 10.55% of total variance. Items related to "Extroversion" formed the next components that explained 10.55 % of the variance followed by "Machiavellian" which was able to explain 10.22% of the variance. The last factor based on the result of Varimax rotation was related to "Openness" with 8.% explained the variance. The results of EFA also revealed that all items were categorized according to the original construct which confirmed the similar diminish ability of a new instrument.

Table 4.54: Factor loadings and dimensionality analysis of new questionnaire using principal component method and using Varimax rotation

	Component						
	1	2	3	4	5	6	7
NE0.55	0.868						
NE0.50	0.852						
NE0.40	0.845						
NE0.35	0.835						
NE0.60	0.832						
NE0.9		0.931					
NE0.14		0.858					
NE0.4		0.846					
NE0.44		0.814					
NE0.24		0.796					
NE0.51			0.855				
NE0.41			0.847				
NE0.56			0.841				
NE0.26			0.817				
NE0.36			0.753				
IMP.18				0.869			
IMP.16				0.868			
IMP.14				0.82			
IMP.15				0.741			
IMP.19				0.736			
NE0.42					0.886		
NE0.37					0.875		
NE0.52					0.828		
NE0.47					0.82		
NE0.22					0.811		
MAK.5						0.885	
MAK.18						0.878	
MAK.10						0.748	
MAK.19						0.737	
MAK.7						0.649	
NE0.13							0.784
NE0.18							0.763
NE0.23							0.742
NE0.43							0.654
NE0.38							0.597
Eigenvalues	4.005	3.951	3.768	3.693	3.693	3.508	2.801
% of Variance	11.443	11.289	10.767	10.552	10.55	10.022	8.001

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization

CHAPTER 5: DISCUSSION AND CONCLUSION

5.1 Introduction

In this chapter, the findings of the study are summarized. Following the summary, the limitations and contribution of the research are presented. Finally, the suggestions for possible future research have been given.

The research hypothesis (H1) assume that there are significant differences for personality traits (Big Five, imposter, and Machiavellian) and mental health among international and Malaysian students by gender. On the contrary, the investigation null hypothesis (H01) assumed that there are no differences for personality traits (Big Five, imposter, and Machiavellian) and mental health among international and Malaysian students by gender. Furthermore, research hypothesis (H2) indicates that there is a significant relationship between personality trait in both Malaysian and International students. Opposing, the investigation null hypothesis (H02) state that there is no relationship between personality traits and mental health between Malaysian and International. Moreover, the research hypothesis (H3) assumed that the students‟ mental health is significantly affected by personality traits patterns. In other words, it is possible to evaluate the mental health among students by using students‟ personality traits (Big Five, imposter, and Machiavellian), While the investigation null hypothesis (H03) assumed that the students‟ mental health are not affected by personality traits and that what we are trying to investigate through this research.

The following discussion expands on this study's findings and integrates them in the context of the relevant literature. Next, the study's contributions to the literature and

implications of the findings for practice are detailed. Last, the study's limitations are presented along with recommendations for future research intended to address the identified limitations.

5.2 Comparisons of Personality Traits and Mental Health

(H01) Assumed that there are no differences for personality traits (Big Five, imposter, and Machiavellian) and mental health among international and Malaysian students by gender.

5.2.1 Big Five Personality

For Big-5 personality, the null hypotheses assumed that there are no significant differences in the Big-5 personality traits and its dimensions between Malaysian and International students by gender. Table 4.19 presents the comparison between Malaysian and International students by gender and its interaction based on Big-5 personality.

Based on Table 4.19 which has provided in chapter 4 the outcomes of two ways ANOVA showed that Neuroticism and Agreeableness were a significant difference between Male and female; while extroversion, openness, and conscientiousness were not significantly differences between male and female. There was no significant difference between Malaysian and International students for Neuroticism, Extroversion, Openness, Agreeableness, and Conscientiousness. Bonferroni test was applied first to study the difference between Malaysian and International students for each gender separately, and the results shown in Table 4.20. The result revealed that Neuroticism,

Extroversion, Openness, Agreeableness, and Conscientiousness were not statistically different between Malaysian and International students for both genders.

Table 4.21 illustrates the result of comparison between male and female students for both groups separately using family wise Bonferroni test. The result showed that Neuroticism and Agreeableness between male students and female students were statistically different in both Malaysian and International students. Extroversion was statistically different between International male and female students but was not statistically different between Malaysian male and female. Openness and Conscientiousness between male students and female students were not statistically different in both Malaysian and International students.

The result of the study was consistent with McCrae (2002) and Schmitt *et al.* (2008). They suggested that personality dimensions are a significant difference between men and women. Schmitt *et al.* (2008) indicated that sex differences in personality consistently tended to be larger in individualistic than in collectivistic nations. Costa et al. (2008) and Schmitt *et al.* (2002) used translated, and administered personality scales in participants' native languages, whereas in the current study personality items were in English. Thus, language-related effects could have influenced the several studies' results. Agreeableness and Neuroticism were the personality traits that corresponded most closely in the current study and the Costa *et al.* (2001) study. Estimates of sex differences in agreeableness and neuroticism in the 18 overlapping countries did, in fact, correlate significantly across these two studies. Agreeableness, neuroticism, and extraversion were the traits that corresponded most closely in the current study and the Schmitt et al. (2008) study. McCrae *et.al*, (2002) claimed that cultural effects are potentially confounded with linguistic effects.

Vianello, *et al.,* (2013) confirmed the previous result showing that Agreeableness, Conscientiousness, Extraversion, and Neuroticism reported higher among the female population than male. Heine and Buchtel (2009) reviewed personality traits Big Five in different cultures. They concluded that personality traits especially Big Five personality dimension were consistent across different culture. Furthermore, they discussed that in the collectivistic cultures people show a higher level of traits which more is concerning about understanding others than in individualistic cultures. Weisberg, DeYoung, & Hirsh, (2011) investigated gender differences in personality traits, and they reported that women showed higher score in neuroticism, agreeableness, and extroversion. Lippa, Richard A (2010) assessed gender differences in personality dimensions by using BBC internet survey from over 200,000 participants from 53 nations. Lippa claimed that women scored significantly higher on neuroticism, extroversion, and agreeableness across nations. Costa *et al.,* (2001) done a gender differences survey on personality dimension from 26 cultures. They reported women were reported higher score in neuroticism and agreeableness than men.

Mastor, Khairul, *et al.,* (2000) determined that Big Five model of personality applies to the Malaysian culture. They compared Malaysians and Australian student, and they reported that Malaysian students showed higher score in Agreeableness and a low score in extroversion and openness. Indeed, the current study does not represent the complete word on cross-cultural consistencies in sex differences in personality. However, it does provide new knowledge that can be used in future studies on this topic, and it offers new data from broader participant populations than have typically been assessed. The results presented here suggest that there may be biological components to some sex differences in personality and that the power of cultural and social structural factors to moderate sex differences in personality may be limited. The

further cross-cultural research will be necessary to sort out the reasons for these differing patterns of results across studies and traits. This finding is intriguing and worthy of further study.

5.2.2 Imposter Phenomenon

For imposter personality, the null hypotheses assumed that there are no significant differences in imposter personality traits and its dimension between Malaysian and International students by gender. Table 4.22 presents the comparison between Malaysian and International students by gender and its interaction based on imposter personality.

To assess whether there were significant differences between genders (Male and Female), groups (Malaysian and International) and also their interaction (Groups* Gender) a two-way ANOVA was applied. Based on Table 4.22 which has presented in Chapter 4, the Total imposter is a significant difference between Male and female. There were significant differences between Malaysian and International students for total Imposter. Bonferroni test was applied to study the difference between Malaysian and International students for each gender separately. The result in Table 4.23 shows that Total Imposter is statistically different between Malaysian students for male students while it is not statistically different between Malaysian and International student for female students. Table 4.24 illustrates the result of comparison between male and female students for both groups separately using family wise Bonferroni test. The results revealed that Imposter between male students and female students was statistically different in both Malaysian and International students.

The result of this study was consistent with Jöstl, *et al.* (2012). They reported that imposter feeling was higher whereas self-efficacy was lower in Women doctoral students than men. The most significant finding is that the impostor phenomenon is negatively related to research self-efficacy. Research self-efficacy is an important indicator for successful university careers; hence, the impostor phenomenon was shown to be a psychological barrier for female university careers. McGregor L. N., *et al.* (2008) examined the relationship of IP and depression on college students. Their result indicated the positive correlation between IP and depression, woman score higher than men in term of IP. Kumar and Jagacinski (2006), investigated the relationship of imposter and achievement goals on 135 college students. Women expressed greater imposter fears than men and were also higher on ability-avoid goals. Cromwell, Brown, Sanchez-Huceles, and Adair (1990) found out that around 20 % of student shown a high level of IP. The Impostor Phenomenon (IP) has been identified as a contributor to distress in some high-achieving individuals.

Clance and Imes (1978) introduced term impostor phenomenon as an internal experience of intellectual phonies, which appears to be particularly prevalent and intense from a select sample of high-achieving women. Individual early family dynamics and later introjection of societal sex-role stereotyping seem to contribute significantly to the development of the impostor phenomenon. Despite outstanding academic and professional accomplishments, women who experience the imposter phenomenon persists in believing that they are not bright and have fooled anyone who thinks otherwise. Numerous achievements, which one might expect to provide ample object evidence of superior intellectual, functioning, do not appear to affect the impostor belief.

L. N. McGregor, D. E. Gee, and K. E. Posey (2008) Additionally, a Multivariate Analysis of Variance (MANOVA) using the IP scores and BDI (Beck depression inventory) scores as the dependent variables, with sex serving as the independent variable, revealed that men and women differ significantly on the combined dependent variables of IP and BDI scores. More specifically, the main effect between sex and IP score indicates that women have higher IP scores man men. However, the effect between sex and BDI was not statistically significant.

5.2.3 Machiavellian

For Machiavellian personality, the null hypotheses assumed that there are no significant differences in Machiavellian personality traits and its dimension between Malaysian and International students by gender. Table 4.25 presents the comparison between Malaysian and International students by gender and its interaction based on Machiavellian personality.

To assess whether there were significant differences between genders (Male and Female), groups (Malaysian and International) and also their interaction (Groups* Gender) a two-way ANOVA was applied. Based on table 4.25 which has presented in chapter 4, the outcomes of the study on Total Machiavellian showed that there was no significant difference between Male and female and also between Malaysian and international students for total Machiavellian. According to these results, there was no significant interaction between gender and groups for total Machiavellian. Bonferroni test was applied to study the difference between Malaysian and International students for each sex separately in Table 4.26. The results show that the Total Machiavellian is statistically different between Malaysian students for male students while it is not

statistically difference between Malaysian and International student for female students. Table 4.27 illustrates the result of comparison between male and female students for both groups separately using family wise Bonferroni test and the result of revealed that the Total Machiavellian between male students and female students was not statistically different in both Malaysian and International students.

These results are in agreement with those obtained by Austin E. J. *et al.* (2007) reported that males scored higher than females on Machiavellian. Paulhus and Williams (2002) findings showed that Male scored significantly higher Machiavellianism. Prior gender literature suggests that gender influences ethical decision making, with females being more ethical than males. His result consistent with previous sex research, women agree less with questionable activities compared to male accounting students. Further support from Kavanagh P. S. (2013) revealed men had higher levels of Machiavellian than women (higher but not significant). Jonason Peter K & Tost Jeremy (2010) reported that men scoring higher in Machiavellian than women did. These results about gender differences are consistent with those of previous studies.

5.2.4 Mental Health

For mental health, the null hypotheses assumed that there are no significant differences in the mental health among Malaysian and International students by gender. Table 4.28 presents the comparison between Malaysian and International students by gender and its interaction based on mental health.

To assess whether there were significant differences between genders (Male and Female), groups (Malaysian and International) and also their interaction (Groups* Gender) a two-way ANOVA was applied (Table 4.28). The outcomes revealed that

Somatization, Depression, Anxiety, Social Dysfunction, and Total GHQ showed are a significant difference between Male and female while there is no significant difference between Malaysian and International students for Somatization, Depression, Anxiety, Social Dysfunction, and Total GHQ. According to these results, there are no significant interaction between gender and groups for Somatization, Depression, Anxiety, Social Dysfunction, and Total GHQ. Bonferroni test was applied first to study the difference between Malaysian and International students for each gender separately and the results (Table 4.29) showed that the Somatization, Depression, Anxiety, social dysfunction, and Total GHG between Malaysian students and International student for both male and female students was not statistically different ($p>0.05$). Table 4.30 illustrates the result of comparison between male and female students for both groups separately using family wise Bonferroni test and the results revealed that the Somatization, Depression, Anxiety, Social Dysfunction, and total GHQ between male students and female students was statistically different in both Malaysian and International students ($p>0.05$).

The results are in line with those of previous studies. Du Preez, Cassimjee, Lauritz, Ghazinour, and Richter (2011) showed that men have less level of somatization, anxiety, depression, and anxiety symptoms, harm avoidance than women. Assadi, et al. (2007) reported that women showed higher score in GHQ rather than men in their study. Emami, *et al.*, Richter (2007) demonstrated the considerable prevalence of mental health disorder among high school students also girls were shown to experiencing mental illness more often than boys. Makaremi (1989) survey results indicated that depression was significantly different between genders and groups (high school, college student). Song *et al.* (2008) analyzed the relationship between depression and three personality factors in college freshmen from Beijing and Hong Kong. There was no sex difference in prevalence in Beijing while the prevalence was

significantly different between sexes in Hong Kong.Li *et al*. (2008) their results revealed that ethnicity, gender, age, and level of satisfaction with significant influence the level of student's mental health.

5.3 The Relationship between Personality Traits and Mental Health

(H02) there is no relationship between personality traits and mental health among Malaysian and international.

5.3.1 The Relationship between Big Five Personality and Imposter

The null hypothesis assumed there is no connection between Big Five Personality Dimension and Imposter Phenomenon and its Sub-Scales. The correlations between big five (neuroticism, extroversion, openness, agreeableness, conscientiousness) and an imposter (luck, discount, fake, and total imposter) among international students are presented in Table 4.32. Pearson product-moment correlation coefficient analyses showed that there is a significantly strong correlation between neuroticism and discount, luck, fake, and a total imposter ($P<0.001$). Meanwhile, various associations have observed between agreeableness and fake, discount, and total imposter. Results among Malaysian students are presented in Table 4.33. Pearson product-moment correlation coefficient analyses showed that there is a significantly strong correlation between neuroticism and discount, luck, fake, and a total imposter ($P<0.001$). There are significant positive correlations between extroversion discount, luck, fake, and total imposter.

Consistent with other studies regarding the Big Five traits impostor tendencies are positively related to Neuroticism and negatively to Agreeableness. Bernard et al. 2002; Chae et al. 1995; Ross *et al.* 2001 stated that The Five-Factor Model of

personality is currently the most widely used framework for investigating of the general personality traits. Studies examining student samples have consistently found a positive correlation with Neuroticism and a negative correlation with Conscientiousness. Also, some of this research has indicated a negative relationship with Extraversion and/or Agreeableness (e.g., Chae *et al.* 1995; Ross et al. 2001), although these associations are much weaker and inconsistent across studies. For reasons of generalizability, it is crucial that these relationships between the IP and traits of the FFM obtained in students are replicated in settings where stakes are much higher, such as the work context. Lester & Moderski, (1995) found that the IP was related to a history of prior suicidal ideation and attempts, psychoticism, neuroticism, irrational thinking, and manic and depressive tendencies as assessed with the Eysenck Personality Questionnaire.

The impostor phenomenon (IP) discusses the intense feelings of intellectual fraudulence, often experienced by high-achieving individuals. Vergauwe. Jasmine (2014) Personality traits refer to ‘‘dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings, and actions’’ (McCrae and Costa 2003, p. 25). IP is defined regarding pervasive patterns of dysfunctional thoughts and feelings. Ross and Krukowaski (2003) described the IP as a maladaptive personality style, which can be the product of a combination of traits, including the Big Five traits (e.g., Watson 2012). Clearly, the on-going fear of being exposed as incompetent is a prominent emotion in the IP. Besides the central role of anxiety (e.g., Oriel *et al.* 2004), associations with other facets of Neuroticism, such as depression (McGregor et al. 2008) and shame (Cowman and Ferrari 2002), substantiate the importance of Neuroticism as a dispositional source of impostor tendencies. The persistent feelings of incompetence are resided at the heart of the impostor construct.

5.3.2 The Relationship between Big Five Personality and Machiavellian

The null hypothesis assumed there is no relationship between Big Five personality dimension and Machiavellian traits and its sub-scales. The correlations between big five (neuroticism, extroversion, openness, agreeableness, conscientiousness) and Total Machiavellian are presented in Table 4.34 and Table 4.35. Pearson product-moment correlation coefficient analyses have shown that there is a significantly strong correlation between Neuroticism and Total Machiavellian among international students. Among Malaysian students, the Pearson product-moment correlation coefficient analyses have shown that there is a significant correlation between Neuroticism and Total Machiavellian. There is a significant relationship between Extroversion and Total Machiavellian ($P<0.001$).

The result was consistent with Stead, *et al.*, (2012) which indicated that Neuroticism and extraversion were positively correlated with Machiavellianism while conscientiousness was negatively associated with Machiavellianism. Jakobwitz and Egan (2006) indicated that Machiavellianism is associated with a moderate level of neuroticism, and low levels of conscientiousness. Lee and Ashton (2005) reported that moderate negative correlations between Big Five Agreeableness and Machiavellianism. E. J. Austin, Farrelly, Black, and Moore (2007) found that Mach is negatively correlated with Agreeableness and Conscientiousness, but positively correlated with Emotional manipulation. Elson Jerome (1989) found that High Machs were significantly more extroverted. Skinner (1983) revealed that the Machiavellian personality tends to be extroverted. Philip A. Vernon & Leanne C. Vickers a (2007) claimed that Machiavellianism correlates positively with neuroticism.

Philip A. Vernon a and Leanne C. Vickers a (2007) studied the relationship of Machiavellianism and Big 5 personality dimensions on 278 adult twins. Participant completed measures Mach-IV inventory and Big 5 (NEO-PI-R). Machiavellianism correlates positively with neuroticism. Consistent with previous works, they found a significant correlation between each big five dimensions Machiavellianism was negatively correlated with agreeableness and conscientiousness and positively correlated with neuroticism. E. J. Austin, Farrelly, Black, and Moore (2007) examined the associations between Machiavellianism (Mach) and emotional manipulation with personality dimensions on the samples of 199 Edinburg University's students. They found, that Mach is negatively correlated with Agreeableness and Conscientiousness, but positively correlated with Emotional manipulation.

5.3.3 The Relationship between Mental Health and Machiavellian

The null hypothesis assumed there is no Relationship between Mental Health and Machiavellian Traits and its sub-scales. The correlations between Mental Health (Somatization, Depression, Anxiety, Social dysfunction) and Machiavellian is presented in Table 4.36 and Table 4.37. Among international students, Pearson product-moment correlation coefficient analyses have shown that there is a significant positive correlation between Social Dysfunction, Somatization, Depression, Anxiety and Total mental health with Total Machiavellian ($P<0.001$). Among Malaysian students result have shown that there is a significant positive correlation between Somatization, Anxiety, and Total mental health with Total Machiavellian ($P<0.001$).

Nigro and Galli (1985) stated that there is a positive correlation between Mach score and both states of anxiety and trait anxiety were found in both sexes. They

hypothesized that moderate anxiety may be associated with high Machiavellian. Fehr, Samsom, and Paulhus (1992) in their review of the literature on Machiavellianism from 1971 to 1987 found that Machiavellianism was consistently associated with anxiety. Gurtman (1992) reported that Machiavellianism has been related to greater problems with intimacy, sociability, and being too controlling in interpersonal relationships. Given that the unethical acts committed by Machiavellians can include a wide range of behaviors(e.g., stealing, lying, and cheating), it seems logical that Machiavellianism has a multidimensional effect on well-being, affecting not only the targets or victims of the behaviors but also work teams and the organization in a much more general sense (ibid.). Interestingly, because Machiavellianism is a personality construct, the perpetrator (i.e., the Machiavellian) should also experience significant detrimental effects on his/her own well-being resulting from this innate, amoral orientation and the actual execution of unethical acts. Machiavellian may suffer more than they benefit from their orientation toward others on lower satisfaction, higher anxiety, and compromised psychological well-being. (Jones, D. N., &Paulhus, D. L. (2009).

Latorre and McLeoad (1978) found no clear link between Machiavellianism and depression. Together, these findings suggest that Machiavellians can generally be psychologically stable individuals who nevertheless may be dissatisfied with their accomplishments, prone to high anxiety, and often disconnected from their emotions in ways that greatly compromise their overall well-being.

Machiavellianism has been described as a dispositional tendency to manipulate and exploit others (Christie &Geis, 1970). These authors have conceptualized Machiavellianism as a normal dimension of personality and have observed that respondents endorsing Machiavellian traits were more likely to behave in a cold and

manipulative way in the laboratory and real word studies. Machiavellianism has been recently linked to juvenile delinquency (Hadjar, Baier, Boehnke, & Hagan, 2007). Research also indicates a negative relationship between Machiavellianism and self-esteem (Austin *et al*., 2007; Dahling, Whitaker, and Levy, 2009; Jones and Paulhus, 2009; McHoskey *et al*., 1999).McHoskey et al. (1999) found that Machiavellianism was negatively associated with self-reports of subjective well-being. Naser Aghababaei (2015) Machiavellian traits do not particularly live a long and happy life.

The links between psychopathology and Machiavellianism can be first discussed by the distinction between Axis I and Axis II disorders. Axis I contains primarily mood and anxiety disorders while Axis II consist of personality disorders. The 1992 review indicated a consistent positive association between Machiavellianism and anxiety. Even Christie and Geis (1970) were suspicious that this counterintuitive relationship was artifactual, resulting from the willingness of Machs to disclose negative feelings. Wrightsman (1991) agreed that high anxiety was at odds with the concept of Machiavellianism, especially their detachment in situations of interpersonal conflict. More recent research has failed to resolve this paradox, with some studies finding no correlation (Allsopp, Eysenck, &Eysenck, 1991; McNamara, Durso, & Harris, 2007; Paulhus& Williams, 2002) and others finding a positive correlation (Jakobowitz & Egan, 2006; Ramanaiah, Byravan, & Detwiler, 1994). The findings of guilt are also inconsistent: Some research indicates that Machs are more guilt prone (Drake, 1995), whereas others report that Machs are less guilt-prone (Wastell & Booth, 2003). Scattered research indicates some positive correlations with other forms of psychopathology, for example, depression (Bakir, Yilmaz, & Yavas, 1996), paranoia (Christoffersen & Stamp, 1995), alexithymia (Wastell & Booth, 2003), socially prescribed perfectionism (Sherry, Hewitt, Besser, Flett, & Klein, 2006), and low self-

esteem (Valentine & Fleischman, 2003; Yong, 1994). Overall links between Mach scales and psychopathology measures appear to be weak and sample-specific. Interpersonal adjustment (Axis IV) concerns whether individuals have harmonious relations with other people. Although clearly relevant to the psychological adjustment of Machiavellians, the Axis IV diagnosis is, once again, mixed. On the one hand, Machs sometimes harm those around them, as we describe later. On the contrary, as noted, Machs can earn liking and respect under select circumstances and time frames (presumably when they deem it to be in their interest) (Hawley, 2006).

5.3.4 The Relationship between Mental Health and Imposter

The null hypothesis assumed there is no relationship between mental health and imposter traits and its sub-scales. The correlations between Mental Health (Somatization, Depression, Anxiety, and Social dysfunction) and Total Imposter are presented in Table 4.38 and 4.39. Pearson product-moment correlation coefficient analyses have shown that there is a significantly strong correlation between Social Dysfunction, Somatization, Depression, Anxiety, Total Mental Health and Total imposter among international students ($P<0.001$). Results have shown that there is a high significant correlation between, Somatization, Depression, Anxiety, Total Mental Health and Total imposter among local students ($P<0.001$).

The result was consistent with Loretta Neal McGregor, Damon E Gee, and K Elizabeth Posey (2008). Results of a Pearson product-moment correlation yielded a positive relationship between the Imposter and depression. The results of the study of September *et al*. (2001) showed impostors scored lower on individual indicators of health, particularly on self-acceptance and mastery of the environment. Cokley,

McClain, Enciso, and Martinez (2013) had found that minority status stress and impostor feelings were predictors of mental health (stress). Impostor feelings were stronger predictors of mental health than minority status stress. L. N. McGregor, D. E. Gee, and K. E. Posey (2008) indicated that there is the positive correlation between Imposter and depression, woman score higher than men in term of Imposter.

Ives (2010) reported an inverse relationship between the IP and Self-efficiency. Also, they concluded that participants who diagnosed as imposters had reported poorer mental health in compare with non-imposters. They have found that imposters are suffering from low mental health. Clance and O'Toole (1998) claimed that high score in IP is experiencing higher levels of anxiety, fear, doubt, and psychosomatic symptoms. Sonnak & Towell, (2001) stated that poorer mental health was significantly related to increasing levels of imposter score. Also, subjects classified as imposter were found to report significantly poorer mental health (higher GHQ score) that non-imposters. (Chrisman, Pieper, Clance, Holland, & Glickauf-Hughes, 1995; McGregor, Gee, & Posey, 2008) The imposter phenomenon has been tied to clinically significant mental health symptoms of depression, generalized anxiety, and low-esteem. Bernard, *et al.*, (2002) said that Depression, anxiety, perceived competence, and self-discipline were to found be correlated with imposter feelings.

Bernard et al., (2002) Found a close relationship between imposter with depression so it seems that depression plays a crucial role within the impostor construct. Also, other, often found associated constructs of the impostor phenomenon with anxiety (e.g. Bernard *et al.*, 2002; Oriel *et al.*, 2004) and low self-esteem (e.g. Ross & Krukowski, 2003; Sonnak & Towell, 2001). Also, also self-handicapping, self-doubt, and negative affect found as correlates (Leary *et al.*, 2000; for & Kleitman, 2006).

Sonnak and Towell (2001) found in a sample of British students impostors reported significantly higher scores on the General Health Questionnaire (GHQ; Goldberg, 1978), indicating a weaker mental health than non-impostors.

5.3.5 The Relationship between Mental Health and Big Five

The null hypothesis assumed there is no relationship between mental health and Big Five personality traits and its sub-scales. The correlations between Mental Health (Somatization, Depression, Anxiety, Social dysfunction) and Big Five (Neuroticism, Extroversion, Openness, Agreeableness, Conscientiousness) are presented in Table 4.40 and Table 4.41. Pearson product-moment correlation coefficient analyses have shown that there are a significantly strong correlation between Neuroticism and Agreeableness with total mental health among international students ($P<0.001$). Among local students, there was a significantly strong correlation between Neuroticism, Extroversion, and conscientiousness with total mental health.

The result of the study was consistent with MdNordin, Abu Talib, and Yaacob (2009). They examined the relations of personality and loneliness and its effect on mental health of Malaysian undergraduate students. Their result showed that 34.4 percentages of students are at risk of mental health problems. Also, extroversion, agreeableness, conscientiousness, openness, and loneliness showed to have a significant relationship on mental health. There was a significant difference in mental health between the year of study, the field of study, ethnicity, and religion. Finally, they reported that loneliness, neuroticism, and extraversion were significant predictors of mental health. Shirazi, Khan, and Ansari (2012) showed that mental health and personality traits are significantly correlated. Mental health was significantly predicted

by agreeableness, neuroticism, and openness and there were no significant differences between professional and non-professional mental health and personality among both genders. Lamers, *et al.*, (2012) released that Neuroticism was shown to be the main correlations psychopathology. Ahadi, B., & Basharpoor, S. (2010) stated that Neuroticism had a significant negative relationship with extroversion, agreeableness, and conscientiousness. However, it had a significant positive correlation with physical symptoms, anxiety, social dysfunction, depression and low mental health. Extroversion had a positive relationship with openness to experience, and negative correlation with physical symptoms, anxiety, depression, and low mental health. Openness to experience had a positive relationship with conscientiousness. Agreeableness had a significant negative correlation with social functioning. Conscientiousness didn't have a great association with any of the mental health indices.

Ed Diener, Oishi, and Lucas (2003) reviewed past literature about the associations of well-being and personality with regards to different cultural contexts. They concluded that personality traits such as extroversion, neuroticism, and self-esteem were effective on the levels of well-being. Besides personality, life events and environments also have a large effect on the well-being of people. Cultural variables found to explain and moderate well-being differences among different societies. It's very challenging to assess well-being across different societies, yet this kind of cross-cultural measures it valuable and still so many unanswered questions need to be answered. Joshanloo, Rastegar, and Bakhshipour (2012) showed a negative correlation between neuroticism and aspects of social well-being. Furthermore, Conscientiousness, openness, and agreeableness were positively associated with aspects of social well-being. Finally, there was no association between extroversion and social well-being.

5.4 Prediction of Mental Health by Personality

(H03) Assumed that the students' mental health is not affected by personality traits. The null hypothesis assumed that the mental health cannot be assessed by knowing personality traits. To investigate about the main objective of this multiple research regressions was applied to examine what extent the proposed multiple linear regression models is supported by the research data. The regression tested how well the mental health scores could be predicted by determined Big Five, Imposter, and Machiavellian. In the multiple regression models, age and gender and level of education, Neuroticism, Extroversion, Agreeableness, Openness, Conscientiousness, Total Machiavellian, and Total Imposter were set as the independent variables and Total Mental Health was considered as the dependent variable. Results of regression coefficients among international students are presented in Table 4.44. According to these results, it was found that among all personality traits Neuroticism, Openness, Agreeableness and Total Imposter were significantly effected on the mental health. Results of regression coefficients among international students are presented in Table 4.45. According to these results, it was found that among all personality traits Neuroticism, Extroversion, and Total Imposter were significantly influence on the mental health of Malaysian students.

The result was consistent with Loretta Neal McGregor, Damon E Gee, and K Elizabeth Posey (2008) Results of a Pearson product-moment correlation yielded a positive correlation between the Imposter and depression. The results of the study of September et al. (2001) showed impostors scored lower on certain indicators of health, particularly on self-acceptance and mastery of the environment. Cokley, McClain, Enciso, and Martinez (2013) had found that minority status stress and impostor feelings

were predictors of mental health (stress). Impostor feelings were stronger predictors of mental health than minority status stress. L. N. McGregor, D. E. Gee, and K. E. Posey (2008) indicated that there is the positive correlation between Imposter and depression, woman score higher than men in term of Imposter.

Vincent Egan 2014, Meta-analyses using the Five Factor Model of personality found Neuroticism strongly predicts lower life satisfaction, less happiness, and more negative emotions, whereas Agreeableness (A) and Extraversion (E) predict positive emotions (DeNeve& Cooper, 1998; Steel, Schmidt, & Shultz, 2008). MdNordin, Abu Talib, and Yaacob (2009) examined the relations of personality and loneliness and its effect on mental health of Malaysian undergraduate students. Their result showed that 34.4 percentages of students are at risk of mental health problems. Also, extroversion, agreeableness, conscientiousness, openness, and loneliness showed to have a significant relationship with mental health. There was a significant difference in mental health between the year of study, the field of study, ethnicity, and religion. Finally, they reported that loneliness, neuroticism, and extraversion were significant predictors of mental health. Shirazi, Khan, and Ansari (2012) showed that mental health and personality traits are significantly correlated. Mental health was significantly predicted by agreeableness, neuroticism, and openness and there were no significant differences between professional and non-professional mental health and personality amongst both genders.

5.5 Limitation and Recommendation for Future Research

i. Due to the high level of neuroticism among female students, it is recommended to provide training and consulting services to develop and

improve emotional stability and mental health among female university students.

ii. Due to the low level of extroversion characteristics between male students, it is recommended to provide counselling and educational services, to enhance communication skills and self-confidence among male university students.

iii. With regard to the low level of mental health among International Students, it is suggested to include life skills (such as problem solving, creative and lateral thinking, critical thinking, effective communication, interpersonal relationships, self-awareness and mindfulness, assertiveness, empathy, equanimity, coping with stress, resilience, and attitude) as a subject in between university courses to provide education of the life skills to students and also to be considered as an important training subject in the level of the society and development of the consultation services in this field is recommended.

iv. Concerning the low level of mental health among students, it is suggested to provide problem-solving skills as a subject for the Students.

v. With regard to the low level of mental health among the female students, it is suggested to provide the training on emotional self-regulation skill to female students.

vi. With regard to the low level of mental health among the students, it is suggested to establish more close interaction and communication between governmental institutions and the universities.

vii. The data in this study came entirely from a single method, i.e., Likert-scale based, self-report questionnaires. Future research into this area

should consider adding at least one additional type of data collection method to avoid method effect.

viii. The proposed tool can be employ as a periodic assessment tool for University of Malay students along their study.

ix. The proposed tool can be used to assess mental health in other educational institution and to compare local with international students.

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