UNIVERSITI PUTRA MALAYSIA

THE PREVALENCE OF MENTAL HEALTH PROBLEMS AND ITS ASSOCIATED FACTORS AMONG HOUSEMEN GRADUATED FROM UNIVERSITI PUTRAMALAYSIA (UPM) IN 2011-2012

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ABSTRACT

Background: About 450 million people alone suffer from mental problems worldwide. It is also a major contributor to the global burden of disease. In Malaysia, 11.2% of adults suffered from some forms of mental problems. Its prevalence and associated factors, particularly among housemen has not been extensively studied in this country.

Objective: To identify the prevalence of mental health problems (depression, anxiety and stress) and factors associated with it among housemen graduated from Universiti Putra Malaysia (UPM) in 2011-2012.

Methods: A cross sectional study was conducted in Faculty of Medicine and Health Sciences by non-probability sampling method using name lists of alumni taken from the office. Computer assisted personal interviews were conducted where data were collected through online questionnaire, consisted of five parts which were socio-demographic characteristics, Epworth Sleepiness Scale (ESS), General Health Questionnaire (GHQ-12), Depression, Anxiety, and Stress Scale (DASS-21) and bully. Chi-square test and Fisher's Exact test were used for data analysis, performed using SPSS version 21.0.

Results: There were total of 226 potential respondents but only 84 people responded to the online questionnaire making the response rate 37%. The prevalence of mental health problems among housemen graduated from UPM were 47.6%, 64.3% and 56% for depression, anxiety and stress respectively. There were significant association between one psychosocial factor, that is bully and stress which was found to be p=0.022, while sleep deprivation, health status, working hours and mental health problems were not significant. The association of socio-demographic factors (gender, ethnicity, marital status, posting location, department and year of housemanship) and mental health problems (depression, anxiety and stress) also showed that none of them were significant (p>0.05).

Conclusion: The prevalence of mental health problems among housemen was high. Bullied housemen were more stressed. Bully was determinant factor for stress among housemen.

Keywords: *Mental health problems, housemanship, prevalence, bullying*

PREVALENS MASALAH KESIHATAN MENTAL DAN FAKTOR-FAKTOR YANG BERKAITAN DENGANNYA DALAM KALANGAN DOKTOR PELATIH LULUSAN UNIVERSITI PUTRA MALAYSIA (UPM) PADA TAHUN 2011-2012

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ABSTRAK

Pengenalan: Kira-kira 450 juta orang setiap satunya mengalami masalah mental di seluruh dunia. Ia juga merupakan penyumbang utama kepada beban penyakit global. Di Malaysia, 11.2% orang dewasa mengalami beberapa bentuk masalah mental. Prevalens dan faktor-faktor yang berkaitan, terutamanya di kalangan doktor pelatih belum dikaji secara meluas di negara ini.

Objektif: Untuk mengenal pasti prevalens masalah kesihatan mental (kemurungan, kebimbangan dan tekanan) dan faktor-faktor yang berkaitan dengannya dalam kalangan doktor pelatih lulusan Universiti Putra Malaysia (UPM) pada tahun 2011-2012.

Kaedah: Satu kajian keratan lintang telah dijalankan di Fakulti Perubatan dan Sains Kesihatan melalui kaedah persampelan tak kebarangkalian menggunakan senarai nama alumni dari pejabat. Temu bual peribadi dibantu komputer telah dijalankan melalui soal selidik dalam talian terdiri daripada lima bahagian, iaitu ciri-ciri sosio-demografi, Epworth Sleepiness Scale (ESS), General Health Questionnaire (GHQ-12), Depression, Anxiety, and Stress Scale (DASS-21) dan buli. Ujian Chi-square dan ujian Tepat Fisher telah digunakan untuk menganalisis data, dilakukan dengan menggunakan perisian SPSS versi 21.0

Keputusan: Terdapat sebanyak 226 responden yang berpotensi tetapi hanya 84 orang yang menjawab soal selidik dalam talian, membuatkan kadar gerak balas menjadi 37%. Prevalens masalah kesihatan mental dalam kalangan doktor pelatih lulusan UPM adalah 47.6%, 64.3% dan 56% masing-masing untuk kemurungan, kebimbangan dan tekanan. Terdapat perhubungkaitan yang signifikan di antara salah satu faktor psikososial, iaitu buli dan tekanan yang didapati $p = 0.022$, manakala kekurangan tidur, status kesihatan, waktu kerja dan masalah kesihatan mental tidak ketara perhubungkaitannya. Hubungkait faktor sosio-demografi (jantina, etnik, status perkahwinan, lokasi penempatan, jabatan dan tahun latihan) dan masalah kesihatan mental (kemurungan, kebimbangan dan tekanan) juga menunjukkan bahawa tidak ada satu pun yang signifikan ($p > 0.05$).

Kesimpulan: Prevalens masalah kesihatan mental dalam kalangan doktor pelatih adalah tinggi. Doktor pelatih yang dibuli lebih tertekan. Buli adalah faktor penentu untuk tekanan dalam kalangan doktor pelatih.

Kata kunci: *masalah kesihatan mental, latihan doktor pelatih, prevalens, membuli*

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1.0 INTRODUCTION

1.1 Background

Mental health is one of the components of health that is of equal importance as physical health. Without it, people are not able to live their live to its fullest, even if their physical health is intact. Depression and anxiety are examples of problems that may result from poor mental health. According to World Health Organization (2012), about 450 million people alone suffer from mental problems worldwide. It is the leading cause of disability worldwide and by 2030 it is predicted to become the greatest cause. It is also a major contributor to the global burden of disease. In the 2006 National Health and Morbidity Survey, 11.2% of Malaysian adults are suffering from some forms of mental problems. Thus, it is of a great importance to highlight and deal with this issue. The main mental health problems to be discussed here is depression, anxiety, and stress.

Mental health problems during internship were reported by 11%, with no gender difference (Tyssen et al., 2000). Although it may develop in different kinds of people, those with a high stress related profession tend to develop mental health problems more than others (Godin et al., 2005). Housemanship is a 2-year programme which is to be completed by medical graduates in Malaysia after medical school, which is also known as internship. It is often regarded as a very stressful stage in medical education. It is compulsory for students who have graduated from medical school to work in the government hospital under housemanship. It is a very challenging stage where the medical students try to adapt in being a medical practitioner. In housemen, prolonged exposure to certain elements may link to the development of depressive symptoms (Newbury-Birch & Kamali, 2001). The importance in knowing the relationship is because these housemen will be the one treating the patients at

professional level, yet some of them fail to recognize that they are also having mental health problems.

Mental problems include a broad range of disease, with different symptoms. However, its general characteristics are combination of abnormal thoughts, emotions, behaviour and relationships with others. Being mentally ill gives a bad impact towards the health of the person itself, and it also has other effects. Without treatment, the physical and emotional disturbances brought on by being in mental health problems can destroy careers and relationships. People with mental health problems too often find it difficult to concentrate and make decisions. They keep away from previously enjoyable activities. Worst of all, depression can lead to suicide (WHO, 2012). Mental health problems in the workplace are a leading cause of low work productivity, due to, for example sick leave and early retirement (Olesen, 2012). Positive mental health is linked to good development outcomes, including better health status, higher educational achievement, enhanced productivity and earnings, improved interpersonal relationships, better parenting, closer social connections and improved quality of life. Positive mental health is also fundamental in coping with adversity.

Depression, anxiety, and stress is preventable, therefore the rationale of the study is for early detection of abnormal mental health status among housemen and to assess its associated factors. By knowing so, mental health problems can be prevented and managed accordingly. As the idiom goes, prevention is better than cure. Mental health can be improved to a more positive level. Later on, interventions can be done in order to reduce the depression, anxiety, and stress levels.

1.2 PROBLEM STATEMENT

Mental health problems are a serious problem in the society. It may lead to other negative consequences if not treated in time. There are a lot of studies involved in the health of medical students and general health practitioner, yet less of it involved medical housemen in Malaysia particularly, even though it requires a considerable physical and mental effort to go through housemanship years. Therefore, how do they cope in being a houseman and do they develop some form of mental health problems, in particularly depression, anxiety, or stress in these two years of practice? Underestimation of the burden of mental problems is likely to happen because of inadequate appreciation of the connection between mental problems and other health conditions.

In order to deal with this issue, socio demographic and psychosocial factors that may participate in developing depression, anxiety and stress is assessed. Therefore, this research aims to determine the prevalence of mental health problems among Universiti Putra Malaysia's medical graduates during housemanship. By participating in this study, respondents were able to know whether they had developed depression, anxiety or stress. The question of what were the factors that will affect the mental health problems too was addressed in the research. Then, it will help in creating awareness and as an early detection in managing the mental health problems and to reduce the risk factors associated with it.

1.3 OBJECTIVES

1.3.1 General Objective:

The general objective is to determine the prevalence of mental health problems (depression, anxiety and stress) and factors associated with it among housemen graduated from Universiti Putra Malaysia in 2011-2012.

1.3.2 Specific Objectives:

1.3.2.1 To determine the prevalence of mental health problems among UPM's medical graduates during housemanship using validated instrument.

1.3.2.2 To determine the socio demographic and psychosocial characteristics of UPM's medical graduates during housemanship.

1.3.2.3 To determine the association between socio demographic characteristics (gender, ethnicity, marital status, location of posting, department, and year of housemanship) and mental health problems among UPM's medical graduates during housemanship.

1.3.2.4 To examine the association between psychosocial factors (sleep deprivation, health status, bully, and working hours) and mental health problems among UPM's medical graduates during housemanship.

1.4 RESEARCH HYPOTHESIS

1.4.1 There is significant association between socio demographic characteristics (gender, ethnicity, marital status, location of posting, department, and year of housemanship) and mental health problem among UPM's medical graduates during housemanship.

1.4.2 There is significant association between psychosocial factors (sleep deprivation, health status, bully, and working hours) and mental health problems among UPM's medical graduates during housemanship.

2.0 LITERATURE REVIEW

2.1 Overview of Mental Health Problems

According to World Health Organization (WHO) (1946), health is a state of complete physical, mental and social well-being and not merely the absence of disease while mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community (WHO, 2010). It is an integral part of psychology. Any imbalance will cause significant effect in thinking, mood, and response otherwise known as mental disorders. Globally, it contributes significantly to the global burden of disease. Four out of the ten diseases with the highest burden are psychiatric disorders. Statistically, mental disorders affect nearly 12% of the world's population. About 25% of all individuals develop one or more psychiatric and behavioural disorders during their lifetime (WHO, 2012).

Diagnostic and Statistical Manual of Mental Disorders (DSM) published by the American Psychiatric Association is used to classify mental disorders. There are many types of mental disorders, but commonly detected are anxiety disorder, mood disorders, psychotic disorders, and eating disorders. Sometimes these disorders are inter-related with each other. Mood disorders involve persistent feelings of sadness or periods of feeling overly happy, or fluctuations from extreme happiness to extreme sadness. The most common mood disorders include depression and mania. According to surveys conducted by WHO, mood disorders are the second most common mental disorder in most countries in the world, with prevalence ranging from 0.8% to 9.6%. Psychotic disorders involve distorted awareness and thinking. Two of the most common symptoms of psychotic disorders are hallucinations and delusions. Schizophrenia is an example of a psychotic disorder. Fourth, a disorder, called eating disorder that involves extreme emotions, attitudes, and behaviours involving weight and food.

Anorexia nervosa, bulimia nervosa and binge eating disorder are the most common eating disorders.

Internship remains a stressful time for medical graduates, despite initiatives to better support them during this period. Its prevalence increases significantly during internship, 70% meeting criteria for psychiatric disturbance on at least one occasion, and 37% meeting such criteria at time towards the end of internship (Willcock, et al., 2004).

Mental disorders are among the risk factors for communicable and non-communicable diseases. They can also contribute to unintentional and intentional injury. In this research the mental health problems focused are depression, anxiety, and stress.

2.1.1 Depression

Depression is characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration (WHO, 2012). Overall, 8.3% of women and 2.7% of men were suffering from possible depression (Newbury-Birch & Kamali, 2001). In Malaysia, the prevalence of depression ranges between 3.9 to 46% (Mukhtar & Oei, 2011). The percentage of junior doctors reporting depressive symptoms scores above a critical value varied between 12.0% and 13.3 % at different point intervals (Weigl et al., 2012).

2.1.2 Anxiety

Anxiety disorder is a chronic condition characterized in person with excessive and persistent sense of uneasiness, with physical symptoms such as sweating and stress feeling and responding to certain objects with fear and dread. Epidemiologically, the lifetime

prevalence of any anxiety disorder is over 15%, while the 12-month prevalence is more than 10% and it is higher in developed countries than in developing countries (WHO, 2009). Altogether 38.9% of women and 5.4% of men were suffering from possible anxiety (Newbury-Birch & Kamali, 2001). Anxiety disorders are the most common disorders in all but Ukraine with prevalence in the range 2.4% to 18.2% (WHO, 2004)

2.1.3 Stress

Stress is defined as the body's non-specific response to demands made upon it, or to disturbing events in the environment (Myers, 2005). Based on a research, job stress is related to mental health problems among young doctors, even when other variables are controlled (Tyssen et al., 2000).

2.2 Classifications of Depression, Anxiety and Stress

The Tenth Revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) is used to diagnose mental health problems. Usually, levels of depression can be divided into three categories that is mild, moderate or severe depression. An individual with a mild depressive episode will be having some difficulty in continuing normal work and social activities, but did not cease to function completely. During a severe depressive episode, the sufferer can only do limited activity in life usually.

There are two classifications of depression, which is unipolar depression and bipolar depression. Unipolar depression is a typical depressive episode where the person experiences depressed mood, loss of interest and enjoyment, and reduced energy leading to diminished activity for at least two weeks, which may also present with anxiety symptoms. Bipolar mood

disorder consists of both manic and depressive episodes separated by periods of normal mood. Manic episodes involve elevated or irritable mood, over-activity, pressure of speech, inflated self-esteem and a decreased need for sleep, (WHO, 2012).

In anxiety, it includes other disorders such as panic disorder, generalized anxiety disorder, mixed anxiety and depressive disorder (WHO, 2001),

For stress, it can be divided into three groups, that is acute stress, episodic acute stress and also chronic stress. It is according to the duration of the stress, each with its own characteristics and symptoms

2.3 Factors Associated With Mental Health Problem among Housemen

There are two types of risk factors that are modifiable and non- modifiable. Modifiable risk factors are factors that the person can change throughout their life, and by having it increases the chances of having mental health problems. Gender, ethnicity, and age are non-modifiable while income, relationship status, and location of posting are modifiable.

2.3.1 Socio-demographic Factors

Based on a research done in Istanbul, the researchers have divided their respondents in accordance to their age group. There are two age groups in this study. The first age group consists of respondents who was 29 and below while the second group is for those who was 30 and above. It was found that the prevalence of respondents who was 29 and below is 15.6% while those who 30 and above has the prevalence rate of 17.6% (Demir at al., 2007). In other studies, the results have shown that symptoms of stress are especially apparent in

teenagers (Bittman, 1999). In a survey of U.S. adults aged 25 to 74 years of age, just 8% of young adults said they had even one stress-free day in a given week, compared with 12% of mid-lifers and 19% of those over 60. About half of mental disorders begin before the age of 14. Around 20% of the world's children and adolescents are estimated to have mental disorders or problems, with similar types of disorders being reported across cultures (WHO, 2012).

Gender can be a determinant to the tendency to have mental health problems. Gender difference significantly impacted stress and some depressive symptoms as female interns felt more stressful in Zung's Self-administered Depression Scale (Hsieh et al., 2011). It may be because female tends to be emotion-focused in coping with problems which will contributes to a distressed feelings as stated by Matud (2004),that females scored significantly higher than men on the emotional and avoidance coping styles and lower on rational and detachment coping. Meanwhile, most anxiety disorders are more prevalent in women than in men (Mclean et al., 2011). Women are more sensitive to emotional demands of the patients and being more empathetic increases their depression risk (Theorell, 2000). In terms of gender, in previous findings, the prevalence rate of depression of men is higher compared to women. The prevalence is 22.6% and 6.3% respectively for each men and women (Demir et al., 2007).

A stable relationship may help in alleviating the symptoms of stress, anxiety and depression as they provide a social support to the housemen throughout the years. The supportive quality of the marriage relationship rather than marriage itself may modulate the experience of stress.

Marital status has been considered in the study in Istanbul. Among the respondents, 15.5% is the prevalence for depression in married respondents and 17.0% for the single

respondents (Demir et al., 2007). There was a research stated that by entering marriage psychological well-being increases and psychological distress decreases (Lovibond, 1995).

Malaysia is blessed with people of different ethnicity, consisting largely of Malays and also other groups such as Chinese and Indians. It may affect the levels of mental health as the perception and culture regarding mental health is different in each ethnic. For comparison, in the United States, ethnic differences reveal lifetime percentages of depression of 6.52% among whites and 4.57% among blacks and 5.17% among Hispanics (Oquendo et al., 2004).

Prevalence of depression is slightly but significantly higher in residents of rural areas compared to urban areas, possibly due to differing population characteristics (Probst et al., 2006). The location as to where the hospitals they are working at contributes to the prevalence of depression as they are interacting and socializing with the communities there. A research in Istanbul has found out that the working place can be another factor of the occurrence of depression. They have classified the working place into few departments which are basic sciences, internal sciences, and surgical sciences. From all these three departments, the department that has the highest prevalence of depression is basic sciences (25%), followed by internal sciences (15.5%) and surgical sciences (12.5%) (Demir et al., 2007).

Based on a cross-sectional study that was carried out in a training hospital in Istanbul, 332 respondents were selected in the research. It was found that the prevalence of depression of the respondents who have been in the residency for 0-12 months was 22.2%, whereas those who have been there for more than 12 months have 12.7% of prevalence. From this figures, we can see that the resident doctors are more prone to have depression at their early time of residency (Demir et al., 2007).

Income can be associated with mental health problems. On average about 800 000 people commit suicide every year, 86% of them in low- and middle-income countries. According to WHO (2012), the financial resources needed are US$ 2 per person per year in low-income countries and US$ 3-4 in lower middle-income countries. It is of modest amount, but with unstable income, it may burden the person. Generally a high income will lead to a good quality of life. Thus, mental health is usually at a good level and vice versa.

2.3.2 Psychosocial Factors

Psychosocial factors play important role in the development of depression among housemen. One of the experiences that they may face during housemanship is bullying. Bullying can be defined as "persistent, offensive, abusive, intimidating, malicious or insulting behaviour, abuse of power or unfair penal sanctions, which makes the recipients feel upset, threatened, humiliated or vulnerable and undermines their self-confidence and may cause them to suffer stress" (Lyons et al., 1995). A research done in Turkey in the year 2006 among white-collar workers has found that there are significant associations between bully with stress, anxiety and depression (Nazan Bilgel et al., 2006).

According to a cross-sectional survey of junior doctors that was conducted in three tertiary care hospitals in two provinces of Pakistan from January 2009 to April 2009, 63.8% out of the 654 respondents have experienced bullying in their workplace. Based on the result obtained, the main source of bullying was from consultant (51.6%) and then followed by other trainee (43.6%), nurse (20.1%), patient (3.6%), patient's relative (21.6%), paramedical staff (16.5%) and administrative staff (3.1%). Surprisingly, 73.3% of them did not complain to anyone regarding the bullying compared to those who have complained which is 26.6% (Imran, N et al., 2010). Another research regarding workplace bullying among junior doctors

was made at Auckland, New Zealand. The questionnaire were sent via internal mail to 141 house officers and 232 registrars. Forty eight house officers and 75 registrars responded to the questionnaires given. This cross-sectional study has revealed that consultants and nurses are the ones who does the bullying the most which is 30% respectively. This is followed by patients (25%), radiologists (8%) and registrars (7%). (Scott et al., 2008)

Sleep deprivation can cause many effects. There was a cross-sectional study about sleep deprivation and its consequences on house officers and postgraduate trainees in Karachi. The research has been involved by 364 respondents. Their diagnosis of depression was based on whether the subjects had negative perception about future, feelings of hopelessness, discouragement, feelings of guilt and restlessness. It was shown that the adverse effects of sleep deprivation in doctors were generalised weakness and bad performance in 115(40%) respondents, anxiety in 110(38%), frequent cold and infections in 107(37%), personality changes in 93(32%), depression in 87(30%), risk of accidents in 68(23%), and medical errors in 58(20%) of the respondents (Mustahsan, 2013). A research that was carried out in 2002-2003 among internal medicine interns of University of Pennsylvania School of Medicine found that there is association between sleep deprivation and depression (Rosen, Ilene M., et al, 2006). In Sweden, the association between stress and shortened sleep was found significant in a research done among workers. The researcher in Sweden did not use questionnaire but instead electronic instrument was used, such as cameras. The activity of subjects during sleep time was recorded and then assessed with a particular method (Torbjorn Akerstedt, 2006). However, the association between sleep deprivation and anxiety was found to be insignificant in a study carried out in France in the year 2006. The study has involved 12 healthy male subjects ranging in age between 18-26 years (Rosen, Ilene M., et al 2006.)

Another psychosocial factor that can affect mental health is working hours. A prospective study that was carried out in Switzerland has found that there is association between the number of working hours and work stress. This study has involved residents as their study population and took 4 years (2001-2005) to complete (Buddeberg-Fischer et al., 2007)

Health status also can affect mental health. A study done in United State that focused on association of anxiety and depression with medical symptom burden in patients chronic medical illness showed that there is strong association between both mental health problems and health status (Wayne Katon et al., 2008). However, there was no journal found that correlate health status with stress.

2.4 Research Screening Test

2.4.1 General Health Questionnaire (GHQ-21)

The General Health Questionnaire (GHQ-21) was developed by Goldberg. It has been translated into 38 languages and can be used to measure current mental health. The major areas it focuses are the inability to carry out normal function and the appearance of new and distressing (Goldberg & Williams, 1988). The original GHQ contains 60 items but there are other shortened versions of GHQ. They can be found in set of 30 items, 28 items, 20 items and 12 items.

A research done in Poland in 2002 have shown that the validity coefficients are 64% sensitive and 79% specific for GHQ-12 while the sensitivity and specificity are 59% and 75% respectively for GHQ-28, which are not particularly high. Their values are below the median value, which exceeds 80% in other studies (Makowska et al., 2002).

2.4.2 Depression Anxiety Stress Scale (DASS)

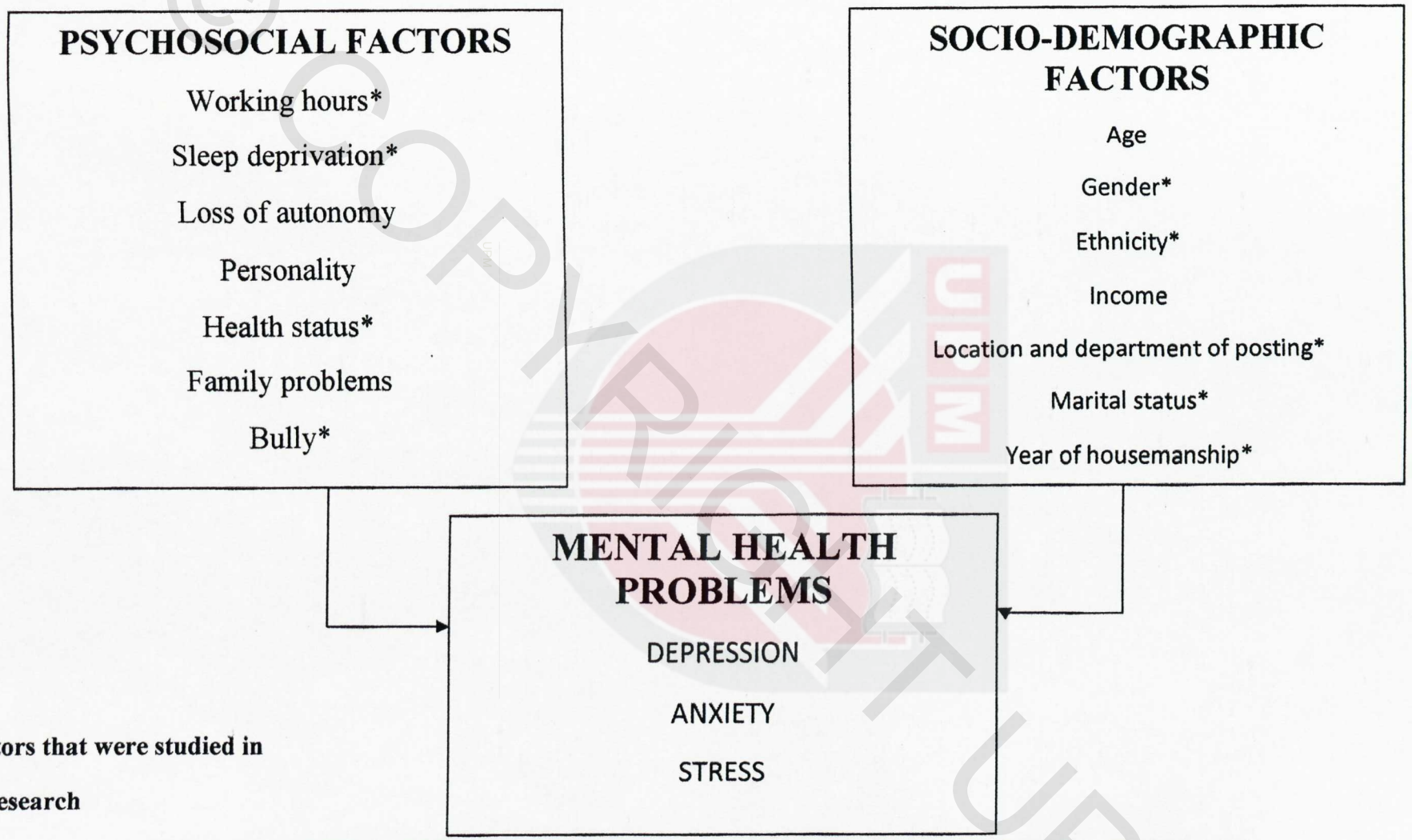
Depression Anxiety Stress Scale (DASS) was created by researchers from University of New South Wales (UNSW), Australia. DASS 21 comprises of 21 questions that covers the psychological status of a person. This questionnaire is the short form of the DASS 42.

The score obtained from this questionnaire can be interpreted based on the scales. The Depression scale has subscales assessing dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The Anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety and subjective experience of anxious affect. The Stress scale's subscales highlight levels of non-chronic arousal through difficulty relaxing, nervous arousal and being easily upset/agitated, irritable/over-reactive and impatient (Lovibond, 1995). The reliabilities (internal consistencies) of the DASS anxiety, depression, stress and total score were estimated using Cronbach's alpha. Alpha was .897 (95% CI = .890–.904) for the anxiety scale, .947 (95% CI = .943–.951) for the depression scale, .933 (95% CI = .928–.937) for the stress scale, and .966 (95% CI = .964–.968) for the total score. (Crawford & Henry, 2003)

2.4.3 Epworth Sleepiness Scale (ESS)

This is a simple, self-administered questionnaire which is shown to provide a measurement of the subject's general level of daytime sleepiness. In the development of this questionnaire, 180 respondents were involved in the testing of this questionnaire. They rated the chances that they would doze off or fall asleep when in eight different situations commonly encountered in daily life. Total ESS scores significantly distinguished normal subjects from patients in various diagnostic groups including obstructive sleep apnea syndrome, narcolepsy and idiopathic hypersomnia (Johns, 1991).

CONCEPTUAL FRAMEWORK



***Factors that were studied in this research**

MENTAL HEALTH PROBLEMS AMONG HOUSEMEN GRADUATED FROM UPM IN 2011-2012

3.0 METHODOLOGY

3.1 Study Location

The study was conducted in Faculty of Medicine & Health Sciences, Universiti Putra Malaysia (UPM).

3.2 Study Design

It was a cross sectional study that was conducted from 25th March to 5th September 2013

3.3 Study Population

The respondents of this research comprised of alumni of the Doctor of Medicine (MD) students who graduated in the year 2011 and 2012 and still undergoing their 2 years of housemanship programme in any hospital over Malaysia at the time of research project. A total of 228 students graduated in those 2 years.

3.4 Sampling Frame

A list of the UPM medical graduates was obtained from the alumni unit of the Registrar of Faculty Medicine and Health Sciences. The list contains their names, emails, and telephone number.

3.5 Sampling Unit

A houseman who graduated from UPM

3.6 Sampling Method

The sampling method used in this study was computer assisted personal interviewing (CAPI). All the medical graduates in both batches were required to answer the questionnaire.

3.7 Sample Size

A total of 228 former UPM students were identified as potential respondents

3.8 Inclusion Criteria

i. A houseman working in any hospital in Malaysia

ii. A medical graduate from UPM

iii. Graduated in the year 2011 and 2012

3.9 Exclusion Criteria

i. Houseman of previous batches who extended their housemanship

3.10 Variables

3.10.1 Dependent Variable

i. The mental health problems such as depression, anxiety, and stress among the UPM housemen

3.10.2 Independent Variables

i. Psychosocial factors - health status, sleep deprivation, bully and working hours

ii. Socio-demographic factors – gender, ethnicity, marital status, year of housemanship, location of posting, department of posting

3.11 Study Instruments

The study instrument used in this research was online questionnaire. The questionnaire was divided into 5 parts. . The first part comprised of questions about the socio-demographic characteristics of respondents such as gender, ethnicity, hospital location, marital status, posting department and year of housemanship.

The second part was the Epworth Sleepiness Scale (ESS) which used to measure sleep deprivation. This questionnaire was designed to measure sleep propensity in a simple and standardized way. It consisted of 8 items in which the result can be assessed by using the provided scale. The scale covers the whole range of sleep propensities, from the highest to the lowest (Johns, 1991). Total score in the range of 1 to 6 indicates that the person has had enough sleep. In the other hand, the average score will be from 7 to 8 while any score from 9 and above indicates that the person should seek for advice from sleep specialist without delay. Moreover, this questionnaire is using the Likert scoring style (0-1-2-3).

Next part consisted of the General Health Questionnaire (GHQ-12) which used to measure the health status of respondents. The General Health Questionnaire (GHQ 12) is the short form of the original GHQ-60. This self-completion questionnaire will ask about any particular experience or symptoms that the respondents have faced recently. The types of scoring method that usually used by researchers are either bi-modal scoring style (0-0-1-1) or the Likert scoring style (0-1-2-3). It is therefore, the scoring method that was used in this study is the Likert scoring style.

The fourth part consisted of the Depression, Anxiety, and Stress Scale (DASS-21). The DASS-21 is a questionnaire that measures the depression, anxiety and stress level. Every question is based on the experience that the respondent might had over the past week. The Likert scoring style (0-1-2-3) was also applied in the DASS-21. The rating scale is as follows:

question; '*If yes, which of the following is the main source of undermining, bullying or harassing?* In this question, they were to pick one of the healthcare workers in the list that showed the most bullying behaviour (Paice., 2004). However, the second question was not accounted in our analysis. Apart from that, the fifth part also consists of questions about 11 bullying behaviour. These questions were developed according to the 11 common abusive workplace behaviours (Hoel & Cooper, 2000). If the respondent answered 'Yes' to any one of the questions regarding bullying behaviour, the respondent was considered as being bullied. These questions were included in the fifth part in order to confirm the bullying behaviour that they have experienced as mentioned in the first question.

3.12 Quality Control

3.12.1 Content Validity

The content of the questionnaire has been ensured its validity by our supervisors.

3.12.2 Face Validity

The prepared questionnaire was pre-tested on 7 housemen from any hospital in Malaysia. By doing this, their responses and comments regarding the questionnaire can be obtained. Any feedbacks given from the housemen have been used to improve the quality of questionnaire before sending them to the real respondents.

3.13 Data collection

This questionnaire is internet-based. Respondents were required to answer the questionnaire in the Google Drive website. In this website, the respondents will only have to answer the questionnaire by just clicking on any suitable answers. This will be a lot easier for them to key in their answer rather than sending them the soft copy of questionnaire in Microsoft Words document. In order to perform the online questionnaire, all the prepared questionnaires will be typed back in the Google Drive according to their sequence. After that, the link of online questionnaire was sent together with respondent information sheet. The link of the online questionnaire is: https://docs.google.com/forms/d/1eD7rGR8yCrX9RoxinpHP2LxAqezqxlOdN1H2rE1GUE/viewform. However, the online questionnaire was made unavailable to public once the data collection time is over.

Each potential respondent was informed about this research through emails, SMS and Facebook message. There were 3 attempts to approach the respondents to complete the questionnaire. The first attempt was done during the first week of data collection while the next attempt was done after one week duration from the previous attempt. This process was repeated until 3 attempts is done. Any irresponsive respondents considered to decline to join the survey. Apart from that, if all the delivery statuses of Facebook message, emails and SMS indicate that it could not reach the potential respondent, they will be automatically eliminated from list.

The confidentiality of the online questionnaire was maintained by ensuring that when the respondent has finished answering the questionnaire, their answers in this questionnaire can only be accessed by the respondent himself and also the researchers. To perform this, we have changed the setting of this questionnaire. If they are interested to know their result, they

will be contacted through emails. Besides, the database was closed within 2-3 weeks after the research project is completed. It will only be kept until this research project is over.

3.14 Data analysis

The data obtained from the questionnaire were analysed by using SPSS 21 for Windows. The advantage of using Google Drive is that all the answers obtained from the online questionnaire can be automatically converted into Microsoft Excel spreadsheet. The Microsoft Excel spreadsheet can also be converted directly into SPSS database. This has eased our process of keying-in the data into SPSS 21. In the SPSS 21, we interpreted the result with analytical and descriptive method.

In order to test for associations between independent and dependent variables, statistical tests such as Chi-square Test and Fisher's Exact Test were used. All test were significant at $p<0.05$.

In any case if the result of this questionnaire of any respondent indicates that the respondent is severely depressed, stressed or anxious, the respondent will be informed through emails and to be suggested to get further consultation with psychiatrist.

3.15 Ethics

Approval has been obtained from the Ethical Committee of Faculty of Medicine and Health Sciences, UPM. In the first page of the online questionnaire, an electronic consent form was filled in by each respondent before answering the questionnaire, in which they can either agree or disagree to join this research project by clicking the prepared buttons. They also

were required to fill in their name and identity card number in order to ensure that only the target study population that answered the online questionnaire. Every information given by the respondents in the questionnaires are strictly confidential and used exclusively for this research. Also, the identities of each respondent are to be kept confidential.

3.16 Definition of Terms

Mental health disease- this is the disease in which a person's mental health cannot function normally. The disease can impair the other body function and can presented with lethargy, lack of self-esteem, depressed mood, and decreased productivity.

Depression- a mental state when a person is at depressed mood, self-conflict and lethargy

Stress – a state of emotional tension

Anxiety – a state of being fear to something. In this study, anxiety is caused by their working environment.

Age – a measure of how old the person is.

Housemanship- a 2-years Malaysian training programme for fresh graduates of any medical degrees by universities recognized by Ministry of Health of Malaysia

Housemen- a term to address the trainees of the housemanship programme

4.0 RESULT

4.1 Response Rate

There were 228 ex-UPM housemen in both batches. Unfortunately, two of them failed to be contacted making the number of potential respondents to be 226. After three attempts to contact them, 84 people responded to our online questionnaire. Thus, the response rate of this research is 37%.

4.2 Normality Test

There were 2 continuous data in the questionnaire which are the average working hours (per day) and the average working hours (per week). In order to check the normality for these data, the Kolmogorov-Smirnov test has been applied.

Variables	Kolmogorov-Smirnov test (sig.)	Median
Working hours (per day)	0.000	12
Working hours (per week)	0.000	60

It is shown that the data for both variables were not in normal distribution. Since the Chi-square test and Fisher's Exact test were to be applied in this study, we have decided to divide each variable into two groups based on their median. The working hours (per day) were divided into a group of people who have worked 12 hours and below per day and also another group for those who have worked more than 12 hours per day. Also, the working hours (per week) were divided into a group who have worked 60 hours and below per week and another group for those who have worked more than 60 hours per week.

Ethnicity		
Malay	47	56.0
Chinese	29	34.5
Indian	6	7.1
Others	2	2.4
Total	**84**	**100.0**
Malay	47	56.0
Non-Malay	37	44.0
Total	**84**	**100.0**
Marital Status		
Single	66	78.6
Married	18	21.4
Total	**84**	**100.0**
Department		
Paediatric	23	27.4
O & G	10	11.9
Orthopaedic	2	2.4
Emergency	31	36.9
Surgery	9	10.7
Medical	7	8.3
Anaesthetic	2	2.4
Total	**84**	**100.0**
Medical based	64	76.2
Surgery based	20	23.8
Total	**84**	**100.0**
Location of Hospital		
Kedah	3	3.6
Pulau Pinang	3	3.6
Perak	14	16.7
Kelantan	6	7.1
Terengganu	2	2.4
Pahang	7	8.3
Selangor	4	4.8
Negeri Sembilan	4	4.8
Melaka	3	3.6
Johor	8	9.5
WP Kuala Lumpur	15	17.9
Sabah	8	9.5
Sarawak	4	4.8
WP Putrajaya	3	3.6
Total	**84**	**100.0**

West Malaysia	73	86.9
East Malaysia	11	13.1
Total	**84**	**100.0**
Year of Housemanship		
First year	9	10.7
Second year	75	89.3
Total	**84**	**100.0**

The psychosocial factors such as working hours (per day) and working hours (per week) were classified based on their median, as explained in section 4.2. Besides, the result obtained from the General Health Questionnaire (GHQ-12) was further classified into two groups. Respondents who were in normal level were put into the healthy group while other respondents who showed evidence of stress and in severe level were classified into the unhealthy group.

Table 4.2 below shows distributions of respondents by psychosocial factors. The psychosocial factors studied are working hours, bully, health status, and sleep deprivation.

It is indicated that 76.2% of respondents worked less than 12 hours per day, and almost half of them worked for 60 hours and less per week. Quite a high percentage showed that they were bullied (75.0%). Only nearly 34.5% of them were healthy while the other 65.5% were not, with another 29.8% were having a severe health problem. Apart of that, more than half (54.8%) of the housemen were not sleep deprived.

Table 4.2: Distributions of Respondents by Psychosocial Factors.

Psychosocial Factors	Frequency, n	Percentage (%)
Working hours (per day)		
≤12	64	76.2
>12	20	23.8
Total	**84**	**100.0**

Working hours (per week)		
41-50	4	4.8
51-60	40	47.6
61-70	19	22.6
71-80	8	9.5
81-90	12	14.3
101-110	1	1.2
Total	**84**	**100.0**
≤ 60	44	52.4
> 60	40	47.6
Total	**84**	**100.0**
Bully		
Not Bullied	21	25.0
Bullied	63	75.0
Total	**84**	**100.0**
General Health Questionnaire(GHQ-12)		
Normal	29	34.5
Evidence of distress	30	35.7
Severe	25	29.8
Total	**84**	**100.0**
Health status	29	34.5
Normal	55	65.5
Unhealthy	**84**	**100.0**
Total		
Sleep deprivation		
No	46	54.8
Yes	38	45.2
Total	**84**	**100.0**

4.4 Prevalence of Mental Health Problems

Table 4.3 shows the prevalence of mental health problems according to level of severity. Each component of mental health problems has 5 severity levels which are normal, mild, moderate, severe and extremely severe.

According to Table 4.3, it is shown that most of housemen were at extremely severe level of anxiety, which is 36.9%. This is followed by normal level, mild level and moderate

level which are 35.7%, 15.5% and 7.1% respectively. There were only 4.8% of the housemen who were in severe level.

There were 48% who were having mild level of stress while only 14.3% were in severe level which is the lowest. The normal level, extremely severe level and moderate level are 44%, 19% and 17.9% respectively.

For depression, there were more than half of them who were in normal level (52.4%) but only 4.8% who were in mild level. The second and third highest were the extremely severe level (20.2%) and moderate level (14.3%) respectively. The fourth highest was severe level (8.3%).

Table 4.3: The Prevalence of Mental Health Problems According To Level of Severity

Mental Health Problems	Frequency, n	Percentage (%)
1. Anxiety		
Normal	30	35.7
Mild	13	15.5
Moderate	6	7.1
Severe	4	4.8
Extremely severe	31	36.9
Total	**84**	**100.0**
2. Stress		
Normal	37	44.0
Mild	4	4.8
Moderate	15	17.9
Severe	12	14.3
Extremely severe	16	19.0
Total	**84**	**100.0**
3. Depression		
Normal	44	52.4
Mild	4	4.8
Moderate	12	14.3
Severe	7	8.3
Extremely severe	17	20.2
Total	**84**	**100.0**

It was defined that the respondents who were in normal level considered to be healthy. Any respondents who were in the other 4 levels were considered to suffer from mental health problem regardless to their severity. Therefore, the prevalence of anxiety, depression and stress in this research were 64.3%, 56% and 47.6% respectively.

The table 4.4 shows the distribution of respondents according to their mental health problem condition. It is shown that 40.5% were suffering from all three mental health problems while only 13.1% were suffering from two mental health problems. Others suffered only one mental health problem (20.2%) while 26.2% were free from any mental health problems.

Table 4.4: Distribution of Respondents According To Mental Health Problem Condition

Condition	**Frequency, n**	**Percentage (%)**
No mental health problem	22	26.2
1 mental health problem	17	20.2
2 mental health problems	11	13.1
3 mental health problems	34	40.5
Total	**84**	**100.0**

Table 4.5 shows detailed distribution of the respondents who suffered one and two mental health problems. In the respondents with 1 mental health problem, there were more people who suffered from anxiety (10.7%) compared to those who suffered from stress (9.5%)

Most respondents with two mental health problems suffered from anxiety and depression (7.1%). This is followed by respondents with anxiety and stress (4.8%) and the respondents with stress and depression (1.2%).

Table 4.5: Detailed Distribution of the Respondents Who Suffered One and Two Mental Health Problems

Condition	Frequency, n	Percentage (%)
1 mental health problem		
Anxiety only	9	10.7
Stress only	8	9.5
Total	**17**	**20.2**
2 mental health problems		
Anxiety & stress	4	4.8
Anxiety & depression	6	7.1
Stress & depression	1	1.2
Total	**11**	**13.1**

4.5.1 The Association between Socio-Demographic Characteristics and Mental Health Problems

Table 4.6 shows the association between socio-demographic characteristics with the presence of depression among housemen of UPM.

The percentage of housemen who showed the symptoms of depression was high (49.1%) in females compared to males. Malay ethnic (48.9%) respondent were more depressed compared to non-Malays. The data also showed that those who were in West Malaysia (47.9%) and single (48.5%) tend to be depressed than married person. Depression was higher in those working in Medical-based department (48.4%). The prevalence of depression too increased more in second year housemen (47.6%) than first year housemen.

The associations between all the socio-demographic characteristics and depression were not significant. Thus, the research hypothesis regarding the association between socio-demographic characteristics and depression is rejected.

Table 4.6 The Association between Socio-Demographic Characteristics and Depression among Housemen of UPM

	Depression status					
	Depressed n (%)	**Not Depressed n (%)**	**Total n (%)**	***df***	**x^2**	**p-value**
Gender						
Male	14 (45.2)	17 (54.8)	31 (100)	1	0.119[a]	0.730
Female	26 (49.1)	27 (50.9)	53 (100)			
Total	**40 (47.6)**	**44 (52.4)**	**84 (100)**			
Ethnicity						
Malay	23 (48.9)	24 (51.1)	47 (100)	1	0.074[a]	0.785
Non-Malay	17 (45.9)	20 (54.1)	37(100)			
Total	**40 (47.6)**	**44 (52.4)**	**84 (100)**			
Hospital location						
West Malaysia	35 (47.9)	38 (52.1)	73 (100)	1	0.024[a]	0.877
East Malaysia	5 (45.5)	6 (54.5)	11 (100)			
Total	**40 (47.6)**	**44 (52.4)**	**84 (100)**			
Marital Status						
Single	32 (48.5)	34 (51.5)	66 (100)	1	0.093[a]	0.761
Married	8 (44.4)	10 (55.6)	18 (100)			
Total	**40 (47.6)**	**44 (52.4)**	**84 (100)**			
Department						
Medical-based	31 (48.4)	33 (51.6)	64 (100)	1	0.072[a]	0.788
Surgical-based	9 (45.0)	11 (55.0)	20 (100)			
Total	**40 (47.6)**	**44 (52.4)**	**84 (100)**			
Year of Housemanship						
First year	4 (44.4)	5 (55.6)	9 (100)	1	0.041*	1.000
Second year	36 (47.6)	39 (52.0)	75 (100)			
Total	**40 (47.6)**	**44 (52.4)**	**84 (100)**			

**Fisher's Exact Test was applied; [a]Chi-square test was applied*

Table 4.7 shows the association between socio-demographic characteristics with the presence of anxiety among housemen of UPM. Females were more anxious (69.8%) than males. Compared to other ethnicity, Malay (70.2%) was more prone of getting anxiety problems. It was illustrated that 72.7% in East Malaysia was having anxiety compared to those in West Malaysia. Anxiety too was higher in married person (66.7%). Being in

Medical-based posting showed that 67.2% had anxiety. Lastly, majority of respondent in first year were anxious.

However, the associations between all the socio-demographic factors and anxiety were not significant. Thus, the research hypothesis regarding the association between socio-demographic characteristics and anxiety is rejected.

Table 4.7 The Association between Socio-Demographic Characteristics and Anxiety among Housemen of UPM

	Anxiety status					
	Anxious n (%)	Not Anxious n (%)	Total n (%)	*df*	x^2	p-value
Gender						
Male	17 (54.8)	14 (45.2)	31 (100)	1	1.910[a]	0.167
Female	37 (69.8)	16 (30.2)	53 (100)			
Total	**54 (64.3)**	**30 (35.7)**	**84 (100)**			
Ethnicity						
Malay	33 (70.2)	14 (29.8)	47 (100)	1	1.633[a]	0.201
Non-Malay	21 (56.8)	16 (43.2)	37(100)			
Total	**54 (64.3)**	**30 (35.7)**	**84 (100)**			
Hospital location						
West Malaysia	46 (63.0)	27 (37.0)	73 (100)	1	0.393*	0.739
East Malaysia	8 (72.7)	3 (27.3)	11 (100)			
Total	**54 (64.3)**	**30 (35.7)**	**84 (100)**			
Marital Status						
Single	42 (63.6)	24 (36.4)	66 (100)	1	0.057[a]	0.812
Married	12 (66.7)	6 (33.3)	18 (100)			
Total	**54 (64.3)**	**30 (35.7)**	**84 (100)**			
Department						
Medical-based	43 (67.2)	21 (32.8)	64 (100)	1	0.986 [a]	0.321
Surgical-based	11 (55.0)	9 (45.0)	20 (100)			
Total	**54 (64.3)**	**30 (35.7)**	**84 (100)**			
Year of Housemanship						
First year	8 (88.9)	1 (11.1)	9 (100)	1	2.658*	0.148
Second year	46 (61.3)	29 (38.7)	75 (100)			
Total	**54 (64.3)**	**30 (35.7)**	**84 (100)**			

**Fisher's Exact Test was applied; [a]Chi-square test was applied*

Table 4.8 shows the association between socio demographic characteristics with the presence of stress among housemen of UPM. Based on the table, stress was slightly more prevalent in females (56.6%). Malays (57.4%) too had a higher probability of being stressed. Other than that, housemen from West Malaysia (56.2) were more stressed than in East Malaysia. Singles (57.6%) had a higher percentage of being stressed. A total of 54.7% were stressed working in Medical-based department. Finally, 77.8 % of first years were stressed.

Since all the *p*-values is more than 0.05, the research hypothesis is rejected, and there was no significant relationship between socio-demographic characteristics and stress.

Table 4.8 The Association between Socio-Demographic Characteristics and Stress among Housemen of UPM

	Stress status					
	Stressed n (%)	**Not Stressed n (%)**	**Total n (%)**	***df***	**x^2**	**p-value**
Gender						
Male	17 (54.8)	14 (45.2)	31 (100)	1	0.025[a]	0.875
Female	30 (56.6)	23 (43.4)	53 (100)			
Total	**47 (56.0)**	**37 (44.0)**	**84 (100)**			
Ethnicity						
Malay	27 (57.4)	20 (42.6)	47 (100)	1	0.097[a]	0.756
Non-Malay	20 (54.1)	17 (45.9)	37(100)			
Total	**47 (56.0)**	**37 (44.0)**	**84 (100)**			
Hospital location						
West Malaysia	41 (56.2)	32 (43.8)	73 (100)	1	0.010*	1.000
East Malaysia	6 (54.5)	5 (45.5)	11 (100)			
Total	**47 (56.0)**	**37 (44.0)**	**84 (100)**			
Marital Status						
Single	38 (57.6)	28 (42.4)	66 (100)	1	0.329[a]	0.566
Married	9 (50.0)	9 (50.0)	18 (100)			
Total	**47 (56.0)**	**37 (44.0)**	**84 (100)**			

Department						
Medical-based	35 (54.7)	29 (45.3)	64 (100)	1	0.174[a]	0.676
Surgical-based	8 (40.0)	8 (40.0)	20 (100)			
Total	**47 (56.0)**	**37 (44.0)**	**84 (100)**			
Year of Housemanship						
First year	7 (77.8)	2 (22.2)	9 (100)	1	1.948*	0.287
Second year	40 (53.3)	35 (46.7)	75 (100)			
Total	**47 (56.0)**	**37 (44.0)**	**84 (100)**			

**Fisher's Exact Test was applied; [a]Chi-square test was applied*

Table 4.9 shows the association between socio-demographic characteristics with the presence of any of the mental health problems (stress, anxiety & depression) among housemen of UPM.

From the results, the associations between all these factors and mental health were not significant. There were no significant association between gender (p = 0.333), ethnicity (p= 0.248), hospital location (p= 1.000), marital status (p= 0.437), department (p= 0.108), and year of housemanship (p= 0.104). It also showed that females and Malays had a higher percentage of having mental health problems. Those who were working in West Malaysia tends to have mental health problem. Being single, working in Medical department-based and first year housemen too had more percentages in having depression, anxiety, or stress. Hence, the research hypothesis regarding the association between socio-demographic characteristics with the presence of any of the mental health problems (stress, anxiety & depression) among housemen of UPM is rejected.

Table 4.9: The Association between Socio-demographic Characteristics with the Presence of Any of the Mental Health Problems (Stress, Anxiety & Depression) Among Housemen of UPM

	Mental Health Problems		Total	*df*	x^2	p-value
	Present n (%)	Absent n (%)	n (%)			
Gender						
Male	21 (67.7)	10 (32.3)	31 (100)	1	0.936 [a]	0.333
Female	41 (77.4)	12 (22.6)	53 (100)			
Total	**62 (73.8)**	**22 (26.2)**	**84 (100)**			
Ethnicity						
Malay	37 (78.7)	10 (21.3)	47 (100)	1	1.333 [a]	0.248
Non-Malay	25 (67.6)	12 (32.4)	37(100)			
Total	**62 (73.8)**	**22 (26.2)**	**84 (100)**			
Hospital location						
West Malaysia	54 (74.0)	19 (26.0)	73 (100)	1	0.008*	1.000
East Malaysia	8 (72.7)	3 (27.3)	11 (100)			
Total	**62 (73.8)**	**22 (26.2)**	**84 (100)**			
Marital Status						
Single	50 (75.8)	16 (24.2)	66 (100)	1	0.605[a]	0.437
Married	12 (66.7)	6 (33.3)	18 (100)			
Total	**62 (73.8)**	**22 (26.2)**	**84 (100)**			
Department						
Medical-based	50 (78.1)	14 (21.6)	64 (100)	1	2.590[a]	0.108
Surgical-based	12 (60.0)	8 (40.0)	20 (100)			
Total	**62 (73.8)**	**22 (26.2)**	**84 (100)**			
Year of Housemanship						
First year	9 (100.0)	0 (0.0)	9 (100)	1	3.577*	0.104
Second year	53 (70.7)	22 (29.3)	75 (100)			
Total	**62 (73.8)**	**22 (26.2)**	84 (100)			

**Fisher's Exact Test was applied; [a]Chi-square test was applied*

4.5.2 The Association between Psychosocial Factors and Mental Health Problems

Table 4.10 shows the association between the psychosocial factors with the presence of depression among housemen of UPM. It is shown that the association between all the psychosocial factors and depression are not significant.

Housemen were more likely to suffer from depression (55.3%) when they were sleep deprived compared to those who were not. Regarding the health condition, there were lesser housemen who became depressed under the circumstance of being unhealthy (50.9%). In the other hand, they became depressed when they were being bullied (50.8%). For working hours, more housemen became depressed when their working hours (per day) was more than 12 hours (55%) whereas there were lesser housemen who became depressed when their working hours(per week) was more than 60 hours (52.5%)

Hence, the null hypothesis for association between psychosocial factors and depression is accepted.

Table 4.10: The Association between the Psychosocial Factors and Depression among Housemen of UPM

	Depression status		Total n (%)	*df*	x^2	*p*-value
	Depressed n(%)	Not depressed n(%)				
Sleep Deprivation						
• **Not sleep deprived**	19(41.3)	27(58.7)	46(100)	1	0.626*	0.273
• **Sleep deprived**	21(55.3)	17(44.7)	38(100)			
General Health Questionnaire (GHQ-12)						
• **Healthy**	13(44.8)	16(55.2)	29(100)	1	0.138*	0.819
• **Unhealthy**	27(49.1)	28(50.9)	55(100)			
Bully						
• **Not bullied**	8(38.1)	13(61.9)	21(100)	1	1.018*	0.450
• **Bullied**	32(50.8)	31(49.2)	63(100)			
Working hours (hours per day)						
• **≤ 12**	29(43.3)	35(54.7)	64(100)	1	0.573*	0.609
• **> 12**	11(55.0)	9(45.5)	20(100)			

Working hours (hours per week)						
• **≤ 60**	21(47.7)	23(52.3)	44(100)	1	0.000*	1.000
• **> 60**	19(47.5)	21(52.5)	40(100)			

**Fisher's Exact Test was applied; [a]Chi-square test was applied*

Table 4.11 shows the association between psychosocial factors with the presence of anxiety among housemen of UPM. The psychosocial factors studied were sleep deprivation, health status, bully and working hours.

It is shown that the association between the all the psychosocial factors and anxiety is not significant. There were more people who tend to be anxious when deprived of sleep (68.4%) compared to when they have had a sufficient sleep. Also, the GHQ-12 result shows that the unhealthy people (65.5%) tend to be anxious in comparison with those who were healthy. Moreover, the relationship of bully and anxiety shows that they tend to become anxious whenever they were being bullied (65.1%) compared to those who did not experienced any. In terms of working hours, more housemen suffered from anxiety when the working hours(per day) was more than 12 hours (80%) and also when the working hours(per week) was more than 60 hours (65%).

Hence, the null hypothesis regarding the association between psychosocial factors and anxiety is accepted.

Table 4.11: The Association between Psychosocial Factors and Anxiety among Housemen of UPM

	Anxiety status		**Total, n (%)**	***df***	x^2	***p*-value**
	Anxious n(%)	**Not anxious n(%)**				
Epworth Sleeping Scale						
• **Not sleep deprived**	28(60.9)	18(39.1)	46(100)	1	0.517*	0.502
• **Sleep deprived**	26(68.4)	12(31.6)	38(100)			

General Health Questionnaire (GHQ-12)						
• **Healthy**	18(62.1)	11(37.9)	29(100)	1	0.095*	0.813
• **Unhealthy**	36(65.5)	19(34.5)	55(100)			
Bully						
• **Not bullied**	13(61.9)	8(38.1)	21(100)	1	0.069*	0.798
• **Bullied**	41(65.1)	22(34.9)	63(100)			
Working hours (hours per day)						
• **≤ 12**	38(59.4)	26(40.6)	64(100)	1	2.823*	0.114
• **> 12**	16(80.0)	4(20.0)	20(100)			
Working hours (hours per week)						
• **≤ 60**	28(63.6)	16(36.4)	44(100)	1	0.017*	1.000
• **> 60**	26(65.0)	14(35.0)	40(100)			

**Fisher's Exact Test was applied; [a]Chi-square test was applied*

Table 4.12 shows the association of the psychosocial factors with the presence of stress among housemen of UPM. The association between bully and stress was significant whereas the association between the sleep deprivation, health status and working hours with stress were not significant. By comparison, the housemen were tend to become stressed in conditions of sleep deprivation (61.8%), unhealthy (56.4%), being bullied (63.5%) and when working hours(per day) was more than 12 hours (65%) while working hours (per week) was more than 60 hours (62.5%).

Therefore, the hypothesis of association between bully and stress is accepted. Also, the null hypothesis about the association between sleep deprivation, health status and working hours and stress are accepted.

Table 4.12: The Association of the Psychosocial Factors and Stress Among Housemen Of UPM

	Stress status		Total, n(%)	*df*	x^2	*p*-value
	Stressed n(%)	Not stressed n(%)				
Epworth Sleeping Scale						
• **Not sleep deprived**	23(50.0)	23(50.0)	46(100)	1	1.462*	0.273
• **Sleep deprived**	24(61.8)	14(36.8)	38(100)			
General Health Questionnaire (GHQ-12)						
• **Healthy**	16(55.2)	13(44.8)	29(100)	1	0.011*	1.000
• **Unhealthy**	21(56.4)	24(43.6)	55(100)			
Bully						
• **Not bullied**	7(33.3)	14(66.7)	21(100)	1	5.813*	0.022
• **Bullied**	40(63.5)	23(36.5)	63(100)			
Working hours (hours per day)						
• **≤ 12**	34(53.1)	30(46.9)	64(100)	1	0.872*	0.442
• **> 12**	13(65.0)	7(35.0)	20(100)			
Working hours (hours per week)						
• **≤ 60**	22(50.0)	22(50.0)	44(100)	1	1.328*	0.278
• **> 60**	25(62.5)	15(37.5)	40(100)			

**Fisher's Exact Test was applied;* [a]*Chi-square test was applied*

Table 4.13 is showing the association between the psychosocial factors and the presence of any mental health problems (stress, depression & anxiety) among housemen of UPM.

Based from our finding, the association between these factors and mental health is not significant. It is shown in the table that the housemen were more likely to suffer from mental health problems when they are sleep deprived (81.6%), unhealthy (72.7%), being bullied

(77.8%) and their working hours(per day) more than 12 hours (80%) while working hours(per week) more than 60 hours (75%).

It is concluded that the null hypothesis for association between psychosocial factors and mental health problems is accepted.

Table 4.13: The Association between Psychosocial Factors with the Presence of Any of the Mental Health Problems (Stress, Anxiety & Depression) Among Housemen of UPM

	Mental health problems		Total n (%)	*df*	x^2	*p*-value
	Absent n(%)	Present n(%)				
Epworth Sleeping Scale						
• **Not sleep deprived**	15(32.6)	31(67.4)	46(100)	1	2.167*	0.212
• **Sleep deprived**	7(18.4)	31(81.6)	38(100)			
General Health Questionnaire(GHQ-12)						
• **Healthy**	7(24.1)	22(75.9)	29(100)	1	0.097*	0.801
• **Unhealthy**	15(27.3)	40(72.7)	55(100)			
Bully						
• **Not bullied**	8(38.1)	13(61.9)	21(100)	1	2.053*	0.164
• **Bullied**	14(22.2)	49(77.8)	63(100)			
Working hours (hours per day)						
• **≤ 12**	18(28.1)	46(71.9)	64(100)	1	0.520*	0.570
• **> 12**	4(20.0)	16(80.0)	20(100)			
Working hours (hours per week)						
• **≤ 60**	12(27.3)	32(72.7)	44(100)	1	0.056*	1.000
• **> 60**	10(25.0)	30(75.0)	40(100)			

**Fisher's Exact Test was applied; [a]Chi-square test was applied*

5.0 DISCUSSION

5.1 Prevalence of Mental Health Problems

This study revealed that the prevalence of housemen who experienced anxiety, stress and depression were 64.3%, 56% and 43.6% respectively. However a similar study which was carried out in Hong Kong among medical graduates of The University of Hong Kong showed that the prevalence for anxiety, stress and depression were 35.4%, 29.2% and 35.8% respectively (T.P. Lam et al., 2010). The DASS-21 used for both researches consists of 5 levels of mental health problems; normal, mild, moderate, severe and extremely severe. Based on the study conducted in Hong Kong, they referred 'abnormal level' as the level ranged from moderate level to extremely severe level whereas our study defines 'abnormal level' as the level ranged from mild level to extremely severe level. This might be the factor that causing a minor difference in the result we obtained in comparison with the previous study. However, after applying their definition of 'abnormal level' on our analysis, we found that the result would show only a slight difference. This may due to the differences in terms of socio-demography, workloads and the housemanship system practised in Hong Kong.

5.2 Association between Socio-demographic Factors and Mental Health Problems

5.2.1 Gender

The result of this study indicates that there is no significant association between gender and mental health problems, as oppose to the previous research done in Taiwan by Hsieh et al. (2011) where gender differences significantly impacted stress and some depressive symptoms as females doctors were more stressed and depressed. However, it did not study the association of gender and anxiety. This rather contradictory result may be due to

different factors of depression, anxiety, or stress that were investigated in other studies compared to this study. Some of the sources of mental health problems also were more prominent in females, related to their physiology, such as being in premenstrual syndrome or pregnancy. Females being more sensitive to emotional demands of the patients and being more empathetic raise their depression risk (Theorell, 2000; Firth-Cozens, 2001). If more of them were in that condition during the study, which causes females to have significant association of mental health problems compared to males in previous studies, but this condition might not occur in our study.

5.2.2 Ethnicity

The second factor in socio-demographic characteristics was ethnicity. The findings of the current study are consistent with those of Yusoff et al. (2011) on "The Prevalence of Final Year Medical Students with Depressive Symptoms and its Contributing Factors" who found ethnicity was not significantly associated with depressive symptoms. The reason for this is not clear but it may have something to do with more mental health problems in housemen occurred because of factors based on housemanship itself, not merely about personal backgrounds such as culture or ethnicity. The similarities of certain qualities and characteristics in ethnics in Malaysia too cause smaller effects in association.

5.2.3 Hospital location

On the question of hospital location, this study found that it is not associated with mental health problems. There are no other published studies on this factor in Malaysia, but this finding is in agreement with Hsieh et al. (2011) which showed no significant differences

among interns in different medical centres in Taiwan. A low number of sample size may explain the result obtained. The usage of the same system or curriculum in housemanship programme in different hospitals too may give effect on the result.

5.2.4 Marital Status

The result of this study showed no significant association with mental health problems. This also accords with earlier results by Demir et al. (2007), Yusoff et al., (2011) however reported in situations where there were love relationships problems, there were significant association ($p = 0.001$) with depressive symptoms. According to Katz et al., (2000), supposed spousal support was positively associated with individuals' own marital and emotional adjustment, reducing stress effects. As stated before, the supportive quality of the marriage relationship rather than the marriage status itself may help in resisting mental health problems.

5.2.5 Department of posting

According to Demir et al. (2007), department of posting did not impact the mental health problems in research in Turkey. It is similar to our findings. As for our study, housemen had to undergo postings in different department for a few months, and start anew in other departments. Therefore, each department might not give a high impact on mental health problems.

5.2.6 Year of housemanship

This research did not show significant association of year of housemanship and mental health problems. This finding is in agreement with Demir et al.(2007) and Hsieh et al. (2011). Irrespective of the year of housemanship, most of the routine involving housemanship programme is almost the same and the workload might be of the same intensity, thus gave the results mentioned above.

5.3 Association between Psychosocial Factors and Mental Health Problems

5.3.1 Sleep deprivation

The psychosocial factors that addressed are sleep deprivation, general health status, bully and working hours. This research has revealed that the association between sleep deprivation and depression was not significant (p=0.273). However, a research that was carried out in 2002-2003 among internal medicine interns of University of Pennsylvania School of Medicine found that there was an association between sleep deprivation and depression (Rosen, Ilene M., et al, 2006).The difference between both study outcomes may due to the difference of study instrument used in both researches. Even though they used the same Epworth Sleepiness Scale to assess sleep deprivation but the DASS-21 was not included in their study. Instead, they used Beck Depression Inventory- Short Form which able to assess depression only. Stress and anxiety components were not taken into account in their research. This is why the DASS-21 was chosen as it addresses all the mental health problems namely depression, anxiety and stress.

The association between stress and shortened sleep was found to be significant in a research done in Sweden by Torbjorn Akerstedt among workers in the year 2006. In

comparison with the result of this study, it was revealed that the association between stress and sleep deprivation was insignificant (p= 0.273). This could be due to the difference of study instrument used. The researcher in Sweden did not use questionnaire but instead electronic instrument was used, such as cameras. The activity of subjects during their sleep time was recorded and then assessed with a particular method. Therefore, the outcome of their research has yielded a different result compared to this study.

The association between sleep deprivation and anxiety (p=0.502) was found to have similar result with a study carried out in France in the year 2006. The study has involved 12 healthy males ranging in age between 18-26 years as the subjects (Rosen, Ilene M., et al 2006.) They also revealed that there is no significant association between sleep deprivation and anxiety.

5.3.2 Health status

One of the main aims in this research was to study the association between health status and mental health problem. It has shown that health status was not significantly associated with mental health problems (anxiety: p=0.813; stress: p=1.000; depression: p=0.819). There was a study that was carried out in United State to find the association between mental health problems such as anxiety and depression with the medical symptom burden of patient with chronic medical illness. The example of illnesses that the patients suffered were cancer and coronary diseases. It was revealed that there was a strong association between both mental health problems and health status (Wayne Katon et al., 2008). Their result contradicts with our result due to the difference in type of respondent. Even though the GHQ-12 results showed severe condition of health status of housemen, but

the burden may not be as heavy as the chronic diseases that the patients in the United States suffered.

This study also revealed that the association between health status and stress was not significant. It appeared to be insignificant as stress would not really be affected by health status. The more prominent mental health problems that can be affected by health status are depression and anxiety. This is why there was no journal found that really correlates health status with stress. Most of the journals found only correlate health status with anxiety and depression.

5.3.3 Bully

This study also has found out that the association between stress and bully was significant (p= 0.022). However, there were no significant associations between bully with depression (p= 0.450) and also anxiety (p=0 .114). In comparison with a research done in Turkey in the year 2006 among white-collar workers, they have found that there were significant associations between bully with stress, anxiety and depression (Nazan Bilgel et al., 2006). This contradicts with the result of this study as only the association between stress and bully that was found to be significant. This could be because of the difference of culture between both countries, in terms of bullying behaviour or maybe the coping skills of victims toward bully.

5.3.4 Working hours

Another psychosocial factor that has been studied in this research is working hours. The questionnaire has required them to provide information about their total working hours

per day as well as the total working hours per week. It was revealed that the prevalence of mental health problems were higher whenever the total working hours (per day) was more than 12 hours and while the total working hours (per week) was more than 60 hours. It was also revealed that there was no significant association between prolonged working hours and each mental health problems (anxiety, stress and depression). A study that was carried out in Switzerland among residents, showed that there was a significant association between the number of working hours and work stress (Buddeberg-Fischer, et al, 2007) In term of accuracy, their study may have shown a better data accuracy as it was a prospective study which took 4 years (2001-2005) to complete. The longer period of their study gave them advantage to assess the residents repeatedly for several times.

Apart from that, a study that was carried out in United States among workers shows that there was significant association between working overtime with anxiety and depression (Kleppa et al., 2008). Their result opposes with our result as their respondents consisted of non-healthcare workers which would have different type of workloads compared to healthcare workers.

5.4 Strength

This is the first second year medical student research done on the alumni of Doctor of Medicine (MD) of Universiti Putra Malaysia (UPM). Also, the alumni sampling frame contains reliable information about the respondents since it was obtained directly from the Registrar of Faculty of Medicine & Health Sciences

5.5 Limitation

One of the limitations of this study was the short time of data collection. Even though the data was collected for one month duration but we only succeeded to get 84 respondents after the data collection time. During the data collection time, 3 attempts to contact the potential respondents also have been done. If the time for data collection was prolonged, we can try more attempts to remind and convince them to answer the questionnaire. Another limitation that we have encountered was the problem of communication. The sampling frame may contain reliable personal information of the potential respondents but some of them were not updated. We also have found few typing errors in the list. This causes the message that we tried to reach them became undelivered. Apart from that, some of the respondents have changed the message setting in their Facebook account making the delivered messages became hard to access for them. Moreover, we also noticed that some of the potential respondents were inactive users of Facebook and emails making the message failed to be delivered. In the other hand, using online questionnaire is also something that limits the study. Some people could not get internet access easily due to their working condition making the online questionnaire inaccessible.

There were few biases that will occur in this research. The first one was recall bias. The respondents may have forgotten the situation the experience they had recently which causing the data collected to be affected. Other than that, non-response bias also can happen. Due to their busy lifestyle as housemen, some of them may not be interested to participate this survey.

5.6 Recommendation

It is recommended for a similar research to be done in a longer time. This would give the researchers more time to contact and convince the potential respondents to answer the online questionnaire. Other than that, we also recommend other researchers to try using online questionnaire from Google Drive as it can ease the conversion of the data collected into SPSS database. This can save more time and money during data collection time.

We are also aware with the importance of doing pilot study. By doing this, any mistakes done during typing the online questionnaire can be corrected. Also, the weaknesses of online questionnaire can be improved like shortening the questionnaire.

There were several psychosocial factors that were being studied. It is better if the numbers of study factors being studied are to be reduced so that the researchers would have better focus on particular study factors. Some of the respondents recommended for the questionnaire to be shortened. This can only be done if the study factors that being studied are reduced. Despite that, a shorter questionnaire will save more time of the respondent as well as to make it look less 'overwhelming'.

5.7 Conclusion

The prevalence of mental health problems of the UPM housemen graduated from 2011-2012 for anxiety, stress and depression were 64.3%, 56% and 43.6% respectively. The only association that was found to be significant was between bully and stress while the associations between all socio-demographic factors and mental health problems were all insignificant. Even though the association of mental health problems with the psychosocial factors such as sleep deprivation, health status and working hours were found insignificant

but it was proven that there were more housemen having mental health problems when they were sleep deprived, unhealthy and prolonged working hours.

APPENDIX 1

	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 11-19	WEEK 20	WEEK 21	WEEK 22	WEEK 23	WEEK 24
Proposal preparation and submission										
Preparation for proposal presentation										
Proposal presentation										
Correction of proposal										
Preparation of ethical letters										
Submission of letter										
Data collection and data analysis										
Submissionof data analysis										
Presentation of analyzed data										
Correction of data analysis										
Report wrinting										
Submission of project report and scientific article										
Preparation of final presentation										
Rehersal for final presentation										
Final Presentation										
Correction for final report and scientific article										
Submission of log book and final report										
Result										

APPENDIX 2: RESEARCH TEAM

Supervisor	AP DR. HEJAR ABD. RAHMAN
Co-Supervisor	DR NORMALA IBRAHIM
Leader	JONATHAN LIWAS
Member	LAILA SYAFIQAH BT. ANUAR

APPENDIX 3: BUDGET PLANNING

Item	**Quantity**	**Price**
Photostatting	150	RM 15
Printing	50	RM30
Stationery	2	RM 8
Total	202	RM 43

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Attachment 2

JKEUPM Ref No. : FPSK_Mei (13)01

Members of the JKEUPM who reviewed the documents:

Prof. Dato' Dr. Lye Munn Sann

Date of approval: 22/7/2013

Endorsed at JKEUPM Meeting on **2/8/2013**, attended by:

NAME	DESIGNATION	GENDER	TICK IF PRESENT
Prof. Dr. Norlijah Othman	Paediatrics& Dean. Faculty of Medicine and Health Sciences	Female	√
Prof. Dr Zamberi Sekawi	Medical Microbiologist & Deputy Dean of Research and Internationalization. Faculty of Medicine and Health Sciences	Male	√
Prof. Dato' Dr. Lye Munn Sann	Medical Statistician. Dept of Community Health. Faculty of Medicine and Health Sciences	Male	
Prof. Dr. Tengku AizanAbd Hamid	Gerontologist & Director. Institute of Gerontology	Female	√
Prof. Dr. Lekhraj Rampal	Medical Statistician. Dept of Community Health. Faculty of Medicine and Health Sciences	Male	
Prof. Dr. Elizabeth George	Pathologist. Dept of Pathology. Faculty of Medicine and Health Sciences	Female	√
Prof. Dr. Lim ThiamAun	Anesthesiologist. Dept of Surgery. Faculty of Medicine and Health Sciences	Male	
Prof. Dr. Wan Omar Abdullah	Medical Parasitologist. Dept of Medical Microbiology and Parasitology. Faculty of Medicine and Health Sciences	Male	
Prof. Dr. Patimah Ismail	Professor of Biomedicine. Dept of Biomedical Sciences. Faculty of Medicine and Health Sciences	Female	√
Assoc. Prof. Dr. Johnson Stanslas	Pharmacologist. Dept of Medicine. Faculty of Medicine and Health Sciences	Male	√
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RESPONDENT'S INFORMATION SHEET

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

STUDY TITLE

Prevalence of Mental Health Problems (Depression, Anxiety And Stress) and Its Associated Factors among Housemen Graduated from Universiti Putra Malaysia in 2011-2012.

INTRODUCTION

Mental health problems are serious problems in the society. It may lead to other negative consequences such as suicide, if not treated in time. Although it may develop in different kinds of people, those with a high stress related profession tend to develop mental health problems more than others. Housemanship remains a stressful time for medical graduates, which may lead to mental health problems. In order to deal with this issue, the association between sociodemographic factors and psychosocial factors with mental health problems are studied. Thus, their mental health status can be known. Depression, anxiety, and stress is preventable, therefore their performance and life as a whole can be greatly improved by acquiring this knowledge, and if suitable changes are made in their life.

WHAT WILL YOU HAVE TO DO?

You are invited to fill up the questionnaire pertaining to your mental health status voluntarily and sincerely.

WHO SHOULD NOT ENTER THE STUDY?

Housemen who are not medical graduates from UPM, not graduated from the year 2011 to 2012, or who are not working in any hospital in Malaysia.

WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

By participating in this study, respondents are able to find out whether they had developed depression, anxiety or stress. The question to what are the factors that will affect the mental health problems too will be addressed in the research. Then, it will help in creating awareness and early detection in managing the mental health problems and to reduce the risk factors associated with it. You can make appropriate changes in your life, thus improving your mental health to a more positive level.

b) TO THE INVESTIGATOR?

Your participation will help us in assessing the prevalence of mental health problems (Depression, Anxiety And Stress) and its associated factors among housemen graduated from Universiti Putra Malaysia so that it will help the future housemen, medical graduates and authorities in preventive measures and intervention management to improve their mental health.

WHAT ARE THE POSSIBLE RISKS?

None.

WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

Yes. All information provided are strictly confidential. Information will only be presented in a collective manner without the mentioning of any individual identity.

WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

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PART A: SOCIO-DEMOGRAPHIC

A. Date of Birth:

_____ (day)/_____ (month)/_____(year)

B. Age:

_____

C. Gender:

_____

D. Ethnicity:

- ☐ **Malay**
- ☐ **Indian**
- ☐ **Chinese**
- ☐ **Others. Please specify:**

  _____

E. Marital status:

- ☐ **Single**
- ☐ **Married**

F. Location of posting:

F1. Current Department: _____

F2. Hospital: _____

G. Year of housemanship:

- ☐ **1st year**
- ☐ **2nd year**

H. Working hours :

Per day? : _____hours

Per week? :_____hours

PART B: WORK RELATED SLEEP DEPRIVATION

Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers.

The rating scale is as follows:

0 No chance of dozing

1 Slight chance of dozing

2 Moderate chance of dozing

3 High chance of dozing

	SITUATIONS	SCALE			
1	**Sitting and reading**	0	1	2	3
2	**Watching TV**	0	1	2	3
3	**Sitting inactive in a public place (e.g. a theatre or a meeting)**	0	1	2	3
4	**As a passenger in a car for an hour without a break**	0	1	2	3
5	**Lying down to rest in the afternoon when circumstances permit**	0	1	2	3
6	**Sitting and talking to someone**	0	1	2	3
7	**Sitting quietly after a lunch without alcohol**	0	1	2	3
8	**In a car, while stopped for a few minutes in traffic**	0	1	2	3

PART C: GENERAL HEALTH

We want to know how your health has been in general over the last few weeks. Please read the questions below and each of the four possible answers. Circle the response that best applies to you.

Have you recently:

No	Question				
1	**Been able to concentrate on what you're doing?**	Better than usual	Same as usual	Less than usual	Much less than usual
2	**Lost much sleep over worry?**	Not at all	No more than usual	Rather more than usual	Much more than usual
3	**Felt that you are playing a useful part in things?**	More so than usual	Same as usual	Less useful than usual	Much less useful
4	**Felt capable of making decisions about things?**	More so than usual	Same as usual	Less than usual	Much less capable
5	**Felt constantly under strain?**	Not at all	No more than usual	Rather more than usual	Much more than usual
6	**Felt you couldn't overcome your difficulties?**	Not at all	No more than usual	Rather more than usual	Much more than usual
7	**Been able to enjoy your normal day to day activities**	More so than usual	Same as usual	Less than usual	Much less than usual
8	**Been able to face up your problem?**	More so than usual	Same as usual	Less than usual	Much less able
9	**Been feeling unhappy or depressed**	Not at all	No more than usual	Rather more than usual	Much more than usual
10	**Been losing confidence in yourself?**	Not at all	No more than usual	Rather more than usual	Much more than usual

11	**Been thinking of yourself as a worthless person?**	Not at all	No more than usual	Rather more than usual	Much more than usual
12	**Been feeling reasonably happy, all things considered?**	More so than usual	About same as usual	Less than usual	Much less than usual

PART D: MENTAL HEALTH

Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

		Did not apply to me at all	Applied to me to some degree, or some of the time	Applied to me to a considerable degree, or a good part of time	Applied to me very much, or most of the time
1	**I found it hard to wind down**	0	1	2	3
2	**I was aware of dryness of my mouth**	0	1	2	3
3	**I couldn't seem to experience any positive feeling at all**	0	1	2	3
4	**I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)**	0	1	2	3
5	**I found it difficult to work up the initiative to do things**	0	1	2	3
6	**I tended to over-react to situations**	0	1	2	3
7	**I experienced trembling (e.g. in the hands)**	0	1	2	3
8	**I felt that I was using a lot of nervous energy**	0	1	2	3

9	**I was worried about situations in which I might panic and make a fool of myself**	0	1	2	3
10	**I felt that I had nothing to look forward to**	0	1	2	3
11	**I found myself agitated**	0	1	2	3
12	**I found it difficult to relax**	0	1	2	3
13	**I felt down-hearted and blue**	0	1	2	3
14	**I was intolerant of anything that kept me from getting on with what I was doing**	0	1	2	3
15	**I felt I was close to panic**	0	1	2	3
16	**I was unable to become enthusiastic about anything**	0	1	2	3
17	**I felt I wasn't worth much as a person**	0	1	2	3
18	**I felt that I was rather touchy**	0	1	2	3
19	**I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate, heart missing a beat)**	0	1	2	3
20	**I felt scared without any good reason**	0	1	2	3
21	**I felt that life was meaningless**	0	1	2	3

PART E: BULLY

1. **In this post, have you been subjected to persistent behaviour by others which has eroded your professional confidence or self esteem?**

   ☐ **Yes**

   ☐ **No**

2. **If yes, which of the following is the main source of undermining, bullying or harassing?**

   ☐ **Consultants**

   ☐ **Specialists**

☐ **Medical officers**

☐ **Other housemen**

☐ **Nurses**

☐ **Patients or relatives**

☐ **Others. Please specify:** _____

3. **For this question, please mark the box for Yes or No. Your answers should be on the basis of how things have been for you recently.**

   Have you recently:

	Situation	Yes	No
1	Having your opinions ignored?		
2	Withholding information which affects your performance?		
3	Being exposed to an unmanageable workload?		
4	Being given tasks with unreasonable or impossible targets or deadlines?		
5	Being ordered to do work below competence?		
6	Being ignored or facing hostility when you approach?		
7	Being humiliated or ridiculed in connection with your work?		
8	Excessive monitoring of a person's work		
9	Spreading gossip?		
10	Having insulting or offensive remarks made about your person (e.g. habits and background), your attitudes or your private life?		
11	Having key areas of responsibility removed or replaced with more trivial or unpleasant tasks?		