



CHAPTER II

LITERATURE REVIEW

In this part, the knowledge about stress, depression, and related factors had been reviewed to introduce an overview about mental status of student in Medical University. Several previous studies in this field also had been reviewed and were used as references.

2.1 Stress and Students Stress survey questions

Stress

Stress is a term that refers to the sum of the physical, mental, and emotional strains or tensions on a person. Feelings of stress in humans result from interactions between persons and their environment that are perceived as straining or exceeding their adaptive capacities and threatening their well-being. The element of perception indicated that human stress responses reflect differences in personality as well as differences in physical strength or health.

A stressor is defined as a stimulus or event that provokes a stress response in an organism. Stressors can be categorized as acute or chronic, and as external or internal to the organism. The Diagnostic and Statistical Manual of Mental Disorders (DAM-IV-TR) defines a psychosocial stressor as "any life event or life change that may be associated temporally (and perhaps causally) with the onset, occurrence, or exacerbation (worsening) of a mental disorder". Stress is also closely associated with depression and can worsen the symptoms of most other disorders. (Rebecca, 2003)

Richard Lazarus published in 1974 a model dividing stress into eustress and distress. Where stress enhances function (physical or mental, such as through strength training or challenging work) it may be considered eustress. Persistent stress that is not resolved through coping or adaptation, deemed distress, may lead to escape (anxiety) or withdrawal (depression) behavior. The difference between experiences which result in eustress or distress is determined by the disparity between an experience (real or imagined), personal expectations, and resources to cope with the stress. Alarming experiences, either real or imagined, can trigger a stress response (Lazarus, 1993)

As "*Beyond blue: the national depression initiative*" approach that aims to influence broader social determinants, the settings in which people spend their time, there are some causes of depression need an attention on the peak incidence in mid-to-late adolescence:

Cumulative adverse experiences, including negative life events and early childhood adversity, together with parental depression and/or non-supportive school of familial environments, place young people at risk for developing depression. Enhanced life skills and supportive school and family environments can mediate the effect of stressful life events.

Obviously, school is an important arena for social and emotional development; however, it can also be a source of negative life events. Poor academic achievement and beliefs about academic ability, coupled with depression, result in poor school engagement, enhanced perceptions of school-related stress, and increased problem behaviors (Burns et al., 2002).

The Student Stress Survey

The Student Stress Survey (Insel et al., 1985) will be used to measure sources of stressors. This survey consists of 40 items divided into 4 categories of potential sources of stress: 6 items representing interpersonal sources of stress, 16 representing intrapersonal sources of stress, 8 representing academic sources of stress, and 10 representing environmental sources of stress. Interpersonal sources result from interactions with other people, such as a fight with a boyfriend or girlfriend or trouble with parents; intrapersonal sources result from internal sources, such as changes in eating or sleeping habits. Academic sources arise from school-related activities and issues, such as increased class workload or transferring between schools. Environmental sources result from problems in the environment outside of academics, such as car or computer problems and crowded traffic. Respondents provided a “Yes” or “No” answer to each item they had experienced during the current school year (Seyedfatemi et al., 2007).

2.2 Depression and CES-D

Depression is a common mental disorder that presents with depressed mood, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration. These problems can become chronic or recurrent and lead to substantial impairments in an individual's ability to take care of his or her everyday responsibilities (WHO, 2008).

According to WHO's Global burden of disease 2001, 33% of the years lived with disability (YLD) are due to neuropsychiatry disorders in which including depression is one of four neuropsychiatry disorders of the six leading to causes of

years lived with disability. More than 150 million persons suffer from depression at any point in time (WHO, 2003).

Depending on the nature and severity of symptoms, the depressive episode may be classified as mild, moderate and severe, or with psychotic features. About 15% of severely depressed cases suffer from what is termed as the 'psychotic form' of depression where they have symptoms which signify their being out of touch with reality. They have delusions (false fixed ideas not amenable to correction) and hallucinations (perceiving something through sense organs without anything being there).

Depression is a complex disorder which can manifest itself under a variety of circumstances and due to a multiplicity of factors. The bio-psychosocial model is useful to understand the causation of depression including:

- Biological (genetic and biochemical)
- Sociological (stressors)
- Psychological (development and life experiences)

The following are various risk factors of depression in adolescent (The World Health Organization [WHO]-Regional Office for South-East Asia, 2001):

- Marital status
- Family history
- Parental deprivation: Parental loss
- Social stressors: life events, chronic stress, and daily hassles
- Social support
- Family type

Depression measurement

According to Ian McDowell in *Measuring health* book, depression measurements are divided into two major groups self-rating methods and clinician-rating scales, which correspond roughly to their use in clinical versus epidemiological studies. A formal diagnosis of depression requires the exclusion of other explanations for the symptoms, and this requires a clinical examination. However, self-assessed measures of depression that is popular and easy to administer, can identify the syndrome of depression but, as with dementia, cannot be regarded as diagnostic devices. This book introduced nine self-rating that have been widely used and tested. Among several methods, the Center for Epidemiologic studies Depression Scale is a depression screening instruments designed for adolescent survey use (McDowell, 2006).

CES-D questionnaire

This study adopted the Center for Epidemiologic Studies' Depression Scales (CES-D) to measure the levels of adolescent depression. The CES-D was designed to cover the major symptoms of depression identified in the literature, with an emphasis on affective components: depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleeping disorders. It composes of 20 questions asking about adolescents' feelings or behaviors related to depressive symptoms. It has been extensively used in large studies and norms are available. It is applicable across age and general groups. It has often been used in cross-cultural research (Iwata et al., 2002; McDowell, 2006).

Items in CES-D were selected from many other scales as Beck's depression inventory (BDI), Zung's self-rating depression scale, Raskin's depression scale, and the Minnesota Multiphasic personality inventory. It performs comparably with other self-report scales and CES-D is better than BDI's where there is a relatively high prevalence of depression (McDowell, 2006).

Moreover, this instrument used for Thai adolescents which its results show the Cronbach alpha coefficient of the CES-D was 0.86, that the validity was significant with Mean = 25.6, SD = 8.8, compared with non-depressed subjects with Mean = 15.4, SD = 6.7, that the sensitivity was 72%, the specificity was 85% and the accuracy was 82%; the cutting point = 22 scores. The report shown that the sample was diagnosed for depression at the significant p-value < 0.001 (Trangkasombat et al., 1997)

2.3 Review of related studies

Studies used CES-D

In adolescent depression and risk factors study by Tiffany, seventy nine high school seniors from suburban Florida were administered the CES-D as well as a questionnaire of parent/peer relationships, suicidal thoughts, academic performance, exercise, and drug use. The extremely high incidence of adolescents who scored above the cut-off >19 for depressed mood (37%) had poorer relations with parents. The depressed adolescents also had less optimal peer relationships, fewer friends, less popular, less happiness, and more frequents suicidal thoughts. They spent less time doing homework, had a lower grade point average, and less time exercising. (Field et al., 2001).

A study in Thai done by Ratana in 2003, she measured depressive prevalence by using CES-D (with cut-off point 22) in 871 adolescents aged 12-22 years. One third (34.9%) of the subjects having depressive symptoms, late adolescents (18-22 years) suffered with high percentage at 33.1%, gender differences existed in depressive symptoms in all subjects with p -value < 0.001 , female were more likely than males to have depressive symptoms (Somrongthong, 2004).

The Black women's health study in 35,224 women ages 21 to 69 in African American measured depressive symptoms in which CES-D was used and its association with physical activity. Adult vigorous physical activity was inversely associated with depressive symptoms. Women who reported vigorous exercise both in high school (≥ 5 hr per week) and adulthood (≥ 2 hr per week) had the lowest odds of depressive symptoms (OR=0.76, 95%CI=0.71-0.82) relative to never active women; the OR was 0.90 for women who were active in high school but not adulthood (95% CI=0.85-0.96) and 0.83 for women who were inactive in high school but became actives in adulthood (95% CI=0.77-0.91) (Wise et al., 2006)

A nearest study in 2008 conducted to investigate the 2-week prevalence of depressive symptoms in 802 Hong Kong and 988 Beijing Chinese college freshmen. Approximately 8.9% of Beijing had scores on the CES-D of 25 or higher, whereas, 17.6% of freshmen in Hong Kong reported scores of 25 or higher. There was no sex difference in prevalence in Beijing. The prevalence is significantly different between sexes in Hong Kong in which 13.4% of men having scores of 25 or higher and 21.3% of women having scores of 25 or higher (Yuqing et al., 2008).

Studies on Medical students

According to the study done by Liselotte N.Dyrbye's, their special article summarized the central themes of exploring the prevalence, causes, and consequences as well as strategies to reduce student medical distress by reaching MEDLINE and Pubmed for English article published between 1966 and 2004. Medical student distress, medication, educational environment contain risks element for students' mental health and its specific consequences. The various manifestations of medical students that were recorded increasingly and differently for each stage of academic year include stress, depression and burnout. Potential causes of student distress mentioned as adjustment to the medical school environment, ethical conflicts, exposure to death and human suffering, student abuse, personal life events, educational debt. Obviously, many effects on students involve impaired academic performance, cynicism, academic dishonesty, substance abuse, and suicide. The overview analysis is shown following on next page as a model of cause and consequence of medical student distress (Dyrbye et al., 2005).

Some terminologies that closely related to depression and stress as anxiety and burnout that was distinguished follow:

Anxiety

The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) defined anxiety as "apprehensive anticipation of future danger or misfortune accompanied by a feeling of dysphoria or somatic symptoms of tension.

Anxiety and depression share common symptoms and can result from similar circumstances, but in theory, at least these two distinguishable. Probably, they are

linked, but anxiety suggests arousal and an attempt to cope with the situation; depression suggests lack of arousal and withdrawal. A 1991 paper by Clark and Watson proposed a tripartite hierarchical model that holds that anxiety and depression have common, but also unique, features. Depression is uniquely characterized by anhedonia and low levels of positive affect referring to loss of pleasure and interest in life, lack of enthusiasm, sluggishness, apathy, social withdrawal, and disinterest. Anxiety, meanwhile, is uniquely characterized by physiological hyper arousal, exhibited in racing heart sweating, shakiness, trembling, shortness of breath, and feelings of panic (McDowell, 2006).

Burnout

Burnout is a state emotional and physical exhaustion caused by excessive and prolonged stress. It can occur when you feel overwhelmed and unable to meet constant demands. As the stress continues, you begin to lose the interest or motivation that led you to take on a certain role in the first place. Burnout reduces your productivity and saps your energy, leaving you feeling increasingly hopeless, cynical, and resentful. The unhappiness burnout causes can eventually threaten your job, your relationships, and your health. Burnout usually has its roots in stress and its signs tend to be more mental than physical. They can include feelings of powerlessness, hopelessness, emotional exhaustion, detachment, isolation, irritability, frustration, being trapped, failure, despair, cynicism, and apathy (Smith et al., 2007).

Students are subjected to different kinds of stressors, such as the pressure of academics with an obligation to succeed, an uncertain future and difficulties of

integrating into the system. The students also face social, emotional, physical, and family problems which may affect their learning ability and academic performance.

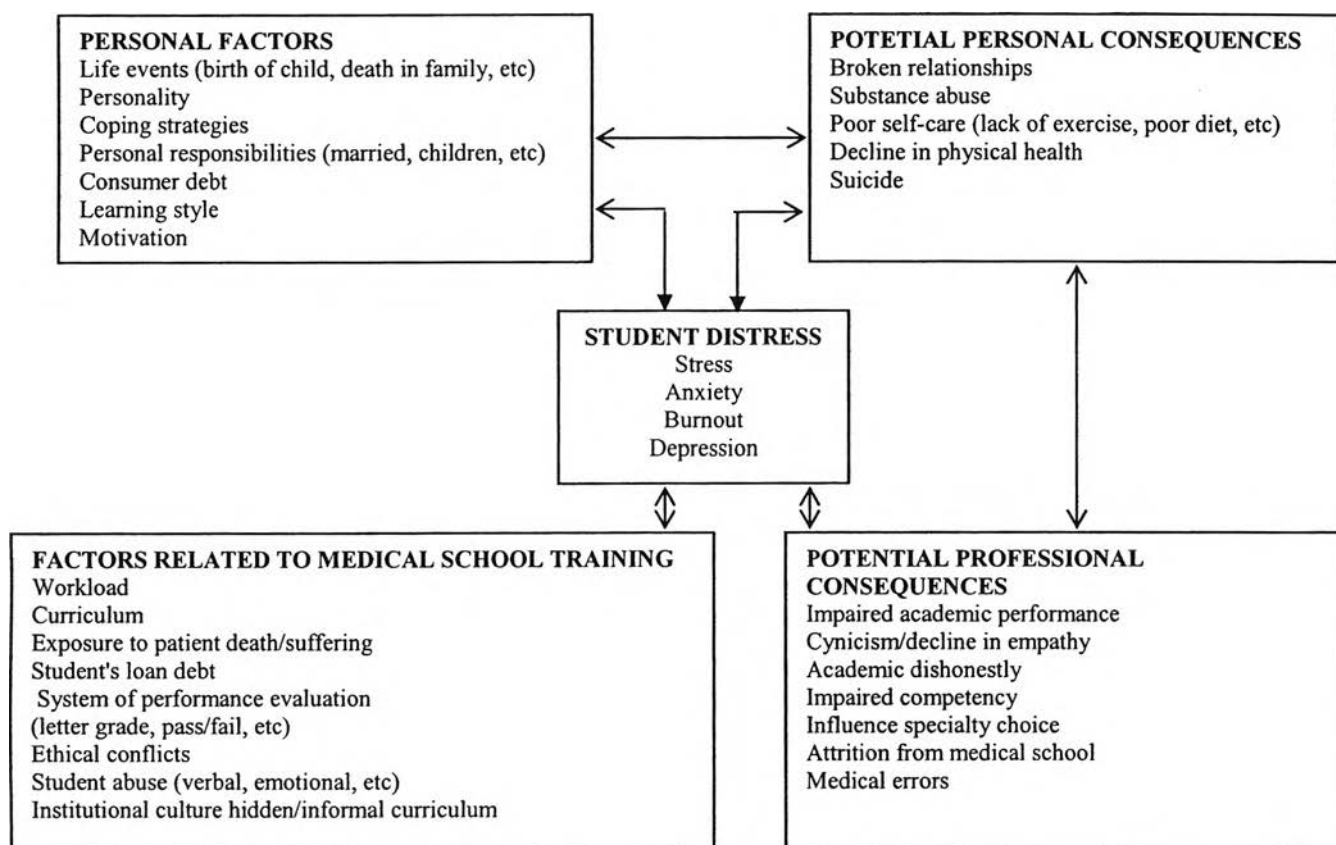


Figure 2: Proposed model of causes and consequences of student distress

(Dyerbye et al., 2005).

Study about experienced stressors and coping strategies among Iranian Nursing students by Naiemeh consisted 440 undergraduate nursing students between 18 and 24 year olds enroll in Iran Medical Science in 2004-2005 academic year by using Student Stress Scale. The most common sources of stress were interpersonal as "finding new friend" (76.2%), the intrapersonal sources as "new responsibilities (72.1%) and "started college (65.8%), that this factor and "change in sleeping habits" were significantly greater stressors in first year students than in students of other years. The other prevalence was academic stressor as "increased class workload"

(66.9%), environment sources as "being placed in unfamiliar situations" (64.2%), and "waiting long line", "change living environment" that were significantly greater in first year students. The most commonly used coping strategies are going along with parent, praying, making one's own decisions, apologizing, helping other people to solve problems, keeping friendships and daydreaming (Seyedfatemi et al., 2007).

According to Marie et al., a cross-sectional study in Institute Medical University, Stockholm, Sweden gave high ratings to the workload and lack of feedback stressors in the first year, female students gave higher ratings than male on many factors. (Stress measured by the Perceived Medical School Stress Scale and depression measured by the Major depression inventory). The prevalence of depressive symptoms among students was 12.9%, significantly higher than in the general population, 16.1% among female versus 8.1 among males. (Dahlin et al., 2005)

In Nepal, psychological morbidity sources of stress and coping strategy among undergraduate medical students studying 2005, the overall prevalence of psychological morbidity was 20.9%. The General health questionnaire, 24 items to assess sources of stress showed that the most important and severe sources of stress were staying in hostel, high parental expectation, vastness of syllabus, test/exam, lack of time and facilities for entertainment (Screeramareddy et al., 2007).

Kaohsiung Medical University, Taiwan, 2005, correlations between academic achievement and anxiety and depression in medical students experiencing integrated curriculum reform (four blocks in the first semester of the new curriculum) study

approved that there were both positive and negative correlations between academic achievement and anxiety and depression in medical students, regarding differing levels of severity of anxiety or depression, used the Zung's Anxiety and Depression scale. Among the medical students who were in the high depression level group in the second psychological assessment, those who had more severe depression had poorer academic achievement in the fourth learning block differing levels of severity of anxiety or depression. (Yeh et al., 2007)

Majority of medical students (175 of 283, approximately 73%) perceived stress publishing by a study of stress in medical students at Seth G.S. Medical College and King Edward Memorial Hospital, Parel, Mumbai, India. Academic factors were greater perceived case of stress in medical students. Emotional factors were found to be significantly more in first year students as compared to second & third students. The Zung's Self – Rating Scale for depression was used to assess the perceived feeling of the students regarding their emotional status counted score more than or equal to 40 as stress definition (Supe, 1998).

Students mentioned that their overwhelming amounts of information were expected during their first and second year of medical training. Moreover, they had difficulty relaxing and engaging in activities normally associated with personal wellbeing. The realizably on future was the most stressful of all. Questionnaires were mailed to students whose essays were reviewed in a quality study about students' perception of medical school stress and their evaluation of a wellness elective which focused on stress reduction and personal wellness done by Jungkwon Lee and Antonnette V Graham (J. Lee et al., 2001).

Female medical students from the general Sweden population in the thesis of Marie Dahlin were more depressed (16.1%), more affected by study stress than their male peers (7.8%). They were also more depressed than women of the same age in the general population (12.9% for common among medical students, 7.8% for general population controls). Study stress was examined by The Higher Education Stress Inventory, prevalence of self-rated depression and suicide ideation/attempts were compared with controls matched by age and sex (Dahlin, 2007).

Using the General Health Questionnaire, it was found that 49.6 percentage encountered significant stress and 64.6 percentages reported that more than 60 percentage of their total life stress was due to medical school. The most important psychosocial stressors were: too much work and difficulty in coping. That is demonstrated in a cross-sectional study to understanding the psychosocial and physical work environment in a Singapore medical school, 2003-2004 (Chan et al., 2007).

A considerable majority (>90%) think that they had been stressful. Females reported more symptoms. Academics and exams were the most powerful stressors. More leisure time activities, better interaction with the faculty and proper guidance, advisory services and peer counseling at the campus, could do a lot to reduce the stress from study a by Shaikh in Pakistani Medical School, 2004 (Shaikh et al., 2004).

2.4 Site of study

There are two public Medical universities in HCM city. Pham Ngoc Thach Medical University is only for students who are residents of HCM city and this university assigns working place for the students after graduate. University of Medicine and Pharmacy which is bigger than the other in terms of amount of students and its history is for all students who come from many other provinces. The students take the same entrance exam for these universities but each University has different standard grade for recruitment.

University of Medicine and Pharmacy at Hochiminh city is the main Medical University for the South of Vietnam locating in HCM city. Its responsibility is to train health profession in under graduate to post graduate level, to conduct research, to care for community health as well as to link with international cooperation. This public university consists of 982 officers and 659 lecturers of which 7 faculties for 84 departments. This study population chose students in Medical Faculty that is the biggest Faculty containing the most number of students.

The University has a hospital in three different locations, one Pharmaceutics Technical Science Centre, six Medical Specialize Centers that apply high technique in treatment as well as medical research. In addition, four dormitories serve for 1,500 students each year. More than 2,000 students enroll for various health science courses in technical, college, undergraduate and post graduate degree each year.

Table 1: University of Medicine and Pharmacy

Faculty	Number of Department
Fundamental science	8 Departments
Medical Faculty	28 Departments
Traditional Medicine Faculty	5 Departments
Odontology Faculty	14 Departments
Pharmacy Faculty	14 Departments
Nurse and Medical Technique Faculty	6 Departments
Public Health Faculty	9 Departments

In two first years, student are learnt the basic sciences and some medical subjects. Their curriculum includes 42 credits of physics, chemistry, biology, language, physical exercise, advance mathematics, anatomy and military education in the first term of the first year. Each subject takes around more than 11 weeks, then after final exam students starting new subject. Generally, students spend 48 hours per week for attending theoretical and practical class.