PSYCHOLOGICAL SYMPTOMS, STRESSORS, AND NUMBER OF NURSE ROOM VISITS: A STUDY OF THAI FEMALE MIDDLE AND HIGH SCHOOL STUDENTS OF SATRIWITHAYA SCHOOL

SAMERPETCH MUALMONGKOLMANEE

A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of

MASTER OF SCIENCE IN COUNSELING PSYCHOLOGY

Graduate School of Psychology
ASSUMPTION UNIVERSITY
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The purpose of this study was to find out the relationship between psychological symptoms, stressors, and nurse room visits for Thai female middle and high school students at Satriwithaya School, Bangkok, Thailand.

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S.M.

PSYCHOLOGICAL SYMPTOMS, STRESSORS, AND NUMBER OF SCHOOL NURSE ROOM VISITS: A STUDY OF THAI FEMALE MIDDLE AND HIGH SCHOOL STUDENTS OF SATRIWITHAYA SCHOOL

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ABSTRACT

This was a causal-comparative study aimed at describing and investigating the relationship between the number of school nurse room visits and types of psychological symptoms for Thai female students in middle and high school. The sample was composed of 360 students who visited the nurse room during August 6 to September 21, 2007. The research instrument was composed of a demographic data questionnaire and a modified symptoms checklist-90 (SCL-90). The Cronbach's Alpha for the overall modified SCL-90 test was 0.943 (N=30).

The findings from this study revealed that the mean subscale scores of the modified SCL-90 tended to be in the low range ("normal" to "low"). There was a significant difference in Somatization and Anxiety subscale scores between students who visited the nurse room one time versus those who visited 5 or more times. There were significant differences between some demographic variables and the modified SCL-90, as follows: there was a significant difference between school grade and Hostility subscale scores, there was a significant difference between the academic program selected by the student and Depression and Paranoid ideation subscale scores, and there was found to be a significant difference between the students' living arrangement and Paranoid Ideation subscale scores. It was also revealed that younger

students visited the nurse room more often than older students. Recommendations are included for further studies and for use of the short form of the SCL-90R (BSI), or the modified SCL-90, in school nurse rooms.

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CHAPTER 1

INTRODUCTION

Background of the Study

Adolescence is not an easy developmental period for many teenagers. Adolescence is roughly considered to be the period between 13 and 19 years of age. When children enter adolescence, they are suddenly exposed to a variety of new experiences and challenges. Some of these experiences and challenges originate from within, such as dealing with pubertal changes, while others are associated with external forces such as peer pressure (Cummings, Greene, & Karraker, 1991). The maximal amount of physical, psychological, and behavioral changes take place during these formative years. It is also a time to prepare for undertaking greater responsibility and a time to ensure health all around development.

Stress and psychological problems in adolescents

Teenage girls have been found to encounter more stressors in life and to respond with a higher incidence of depressive disorders. Depression negatively impacts growth and development, school performance, and peer or family relationships, accounting in part for their higher levels of depression (Hankin, 2007). Furthermore, the change in depressive symptoms was significantly related to changes in the number of stressful events experienced. Hence, the relationship between stressor frequency and depression appeared to strengthen as girls matured, whereas it decreased for males. A study from Paul and Ratcliffe (2004) found that girls reported significantly more stressful events from age 12 to 17 than boys, and girls showed higher levels of internalizing from age 13. Similarly, a study by Kovacs (1985) found that girls had slightly fewer depressive symptoms in childhood but surpassed boys after age 13.

However, it has been suggested that girls' health during the adolescent years may make some susceptible to negative health outcomes during puberty as the stress associated with the transition to adolescence make individual differences more pronounced (Caspi & Moffitt, 1991).

There are many studies that support the idea that gender predicts stress and psychological distress. For instance, Grannis (1992) found that girls appraised stressor events as more upsetting than did boys, and this was associated with girls' higher grades. Some studies about fear/shyness found that these variables share a common genetic liability with depression and anxiety, which may partially explain the predictive effects (Goldsmith & Lemery, 2000; Ono, Ando, Onoda, Yoshimura, Momose, et al., 2002). Furthermore, Bongers, Koot, Ende, and Verhulst (2003) found significant increases for girls "but not boys" internalizing trajectories from age 4–18. A study by Shashi and Subhash (2007) found major depression affects 3 to 5 percent of children and adolescents. 5% of those 9 to 17 years of age met the criteria for Major Depressive Disorder and 3% of their adolescents had Dysthymic Disorder. In addition, Angold, Erkanli, Silberg, Eaves, and Costello (2002) and Keiley, Lofthouse, Bates, Dodge, and Pettit (2003) revealed that, by 14 years of age, depressive disorders are more than twice as common in girls as in boys, possibly because of differences in coping styles or hormonal changes during puberty. There is also evidence that internalizing trajectories vary by sex, with girls showing higher mean levels and sharper increases in internalizing symptoms from childhood to adolescence than boys (Angold et al., 2002). The tendency for girls to show greater increases in depression and anxiety than boys during adolescence has been theorized to relate to girls' increased vulnerability and reactivity to stressful events involving others, girls' greater rumination about events and

emotions, and a sex-differential in socialization pressures (Leadbeater, Blatt, & Quinlan, 1995).

The diagnostic criteria for depression in children and adolescents are essentially the same as those for adults; however, symptom expression may vary with developmental stage, and some children and adolescents may have difficulty identifying and describing internal mood states. Medical tests may show no physical cause. These causes identified stress as a body's physical and psychological response to anything perceived as overwhelming: when stressed, the body creates extra energy to protect itself, which creates an imbalance within the body system. This imbalance may be viewed as a result of life's demands, pleasant or unpleasant, and lack of response to meet the stress; consequently, a direct and indirect impact on physiological symptoms like headache, high blood pressure and heart diseases, etc. Organizational factors like an overburden of work, hazardous working conditions, role conflict, role ambiguity, etc., are also sources of stress, the consequences of which may give rise to psychological symptoms like sleep disturbances, depression, and so forth in adolescent girls (Dubat, Punia & Rashmi, 2007).

An increase in psychosomatic symptoms was related to increasing school alienation (dislike or boredom of schoolwork, school experienced as useless or fertile) or school distressing experiences. Youth with lower self-efficacy (abilities to cope with bullies, make friends at school, get involved in class activities, cooperate) and lower perceived teacher or peer support, and who reported greater school alienation were at the greatest risk of psychosomatic symptoms. Teacher support appeared to reduce risks for girls and peer support helped both, particularly boys' risk of psychosomatic

symptoms. An unexpected finding was girls' symptoms of backaches, dizziness, and feeling "low" increased as general self-efficacy increased, suggesting that those who felt more capable were actually more stressed by a sense of responsibility for their achievement (Natvig, 1999). Interpersonal stressors such as relationship problems with peers or family members might be increasingly stressful during puberty, when girls develop more negative body images than boys (Allgood-Merten, Lewinsohn, & Hops, 1990). Such biological and environmental factors might precipitate increases in normative levels of girls' internalizing behavior during adolescence.

Visits to the doctor generally fail to uncover general medical explanations. Depressive symptoms are reported by 86 percent of teenagers with daily headache (Kaiser, 1992). In extreme cases, called social phobia, the adolescent becomes very withdrawn, though he or she wants to take part in social activities. That study investigated how factors that may be related to stress affect mental health. They proposed that teens attempt to gain further understanding of their families, friends, beliefs, ideas, and especially themselves; dealing with stress, teens may feel like they are being unfairly judged, overwhelmed, angry, and impatient with themselves as well as those around them. Felsten and Wilcox (1992) found that stress was associated with increased psychological and somatic distress as well as with a decrease in grade point average. Since stress can impair both body and brain systems, it can lead to both physical and mental illness. According to the study by Bruns and Disorbio (2003), most somatizing disorders involve a misguided pursuit of a medical solution to a problem that is essentially psychological in nature. In general, individuals with somatizing disorders have underlying psychological problems and wrongly attribute their physical symptomatology to a medical condition while denying the underlying psychological

dynamics. Research from Winslow (2006) has demonstrated that the brain is very sensitive to stress hormones and, as a result, chronic stress can damage the brain and cause psychological problems.

School Nurse Care

Dealing with stress has become an important issue in health education in community settings. With increasing demands and changes in the daily lives of families, helping children to deal with stress has become increasingly more significant in community health nursing. Nurses who want to mediate effects of stress in children need more information about stress buffers in the daily lives of children. The school nurse is described as a part of the school health services, one who plays a role in the provision of school health care services; the school nurse provides acute, chronic, and episodic health care. Goals are a major component of the larger school health program and focuses on early prevention and intervention. Since the transition from elementary to intermediate school provokes negative academic, social, and psychological consequences for many students, educators of young adolescents need to address both the educational and health issues of students (Kann, Collins, Pateman, Small, Ross, & Kolbe, 1995). Hence, the school nurse room is very important for providing a health services center for all students in the school, primary care knowledge, and acts as a social service agent to ensure a full spectrum of effective and quality services that sustain students, school members, teachers, parents, related school workers, and the surrounding communities. The school nurse room helps to develop comprehensive health services as one of the school health programs by collecting important information; such as the frequency of students visits to the nurse room, administering illness diagnosis checklists, writing of students sickness report and keeping students

physical check-up histories for addressing the diverse and complex health problems of the individual students.

Cannon (1929) viewed stress as the biological mobilization of the body for action, involving sympathetic activation and endocrine activity. Selye (1956), similarly, saw stress as the activation of a host of physiological systems. The later and more psychological theories of stress defined stress as being caused when the perceived demands on the organism exceeded the resources to meet those demands (Gurung, 2006). A report from Pruitt (2000) stated that teenagers who suffer from excessive anxiety regularly experience a range of physical symptoms as well, may complain about muscle tension and cramps, stomachaches, headaches, pain in the limbs and back, fatigue, or discomforts associated with pubertal changes. Furthermore, Russell and Deborah (2005) stated that large international surveys show that about 8% of adolescents report daily headaches.

Statement of the Problem

Stress is a physical and psychological reaction to issues and events emanating from one's environment, such as perceived obstacles to goal achievement, environmental change, life challenges and periods of significant transition are common stress triggers for college students (Gregory, 2007). Most of this stress is actually positive, serving to motivate, but, like most things in excess, too much stress is negative (Gregory, 2007). Vichien, Deputy Director of NIETS (National Institute of Education Testing Service), showed that , according to the highest scores of the O-NET (Ordinary National Education Testing) for the top 50 high schools in Thailand on 30 June, 2007, Satriwithaya School was the 24th school in highest score of achievement in 5 subjects

(Thai, Social Studies, English, Mathematics, and Science). Satriwithaya School was selected for use in the current study on psychological symptoms, stressors and number of school nurse visits since academic stress may lie behind some of the psychological symptoms that arise in this population. Satriwithaya School is one of the top middle and high schools for girls in Bangkok with a good reputation as an educational institute. Resources from the school nurse room indicated that there are about hundred students who visit the nurse room per day. This might be because of a higher academic pressure on the students, hence, more physical and psychological symptoms may appear. There is an assumption that more nurse room visits related to increased number of mental health symptoms. The objective of the school nurse is to provide care to students and staff who have been injured or who present with acute illnesses. Specific roles for the school nurse are not only inclusive of ensuring access to primary health care, the diagnosis and monitoring of physical illness, screening symptoms and transferring cases, and supporting school health programs for the identification and resolution of students' health care needs that affect educational achievement, but also focusing on prevention and early intervention (School Nurse; Satriwithaya School, 2007). Care may involve treatment of health and mental problems within the scope of physical illness and its related psychological symptoms. The school nurse aims to diagnose and provide medical primary care for students with physical illness, but generally does not deal with psychological problems.

Stress may appear as nurse room visits. A data from the nurse room of Satriwithaya School showed report of 10,442 visits in 2006, for a total of 3,500 students. This result was an average rate of 3 visits per student. The top five illnesses indicated were injury (18.61%), headache (16.96%), cold and fever (14.14%), body

pain (9.53%), stomach aches (13.80%), and the rest for other sicknesses, such as related to menstruation, rashes or allergies (26.96%). The sum for the number of headache and stomach aches was 30.76%, which is about one third of the illnesses. As described in the introduction, headaches and stomach aches are frequently found in those suffering from stress.

Alternatively, the number of visits implied physical symptoms as a consequence of stressors. Based on the school nurse report, the researcher shall assume that the students visits involving headaches and stomachaches are related to psychological symptoms, as headaches and stomachaches are symptoms that have been linked to both physical and psychological problems. From the researcher assumption, examples of stressors which may produce stress to the students are the academic environment associated with different aspects of school work and assignments, intensive school activity programs, maladjustment to the school environment, low academic efficiency, inappropriateness of school academic programs and the school activity selected, family pressure, peer pressure, school pressure, school work load and assignment deadlines, and the schedule may affect how individuals respond; these all produce stress from time to time.

Hence, this study will look at stomachaches and headaches as possible psychosomatic symptoms, and to investigate their relationship between psychological symptoms, stressors, and number of nurse room visits for students of the Satriwithaya School.

Objectives of the Study

The objective of this study has been comprised of four purposes. Firstly, the study aimed to identify the number of nurse room visits of Thai female Middle and High School students. Secondly, it intended to identify and describe the type and level of psychological symptoms experienced by Thai female Middle and High School students. Thirdly, the study aimed to ascertain the relationship between the number of nurse room visits and psychological symptoms as measured by modified SCL-90 (Symptoms Checklist-90). Lastly, it investigated the difference in the number of nurse room visits and the level of psychological symptoms across the following demographic variables: age, school grade, GPA, academic programs, number of siblings, parental status, and student's living arrangement.

Research Hypotheses

For the sake of brevity, only null hypotheses are presented below:

Ho1: There is no significant relationship between the number of nurse room visits and psychological symptoms as measured by modified SCL-90 (Somatization, Interpersonal sensitization, Depression, Anxiety, Hostility and Paranoid ideation).

Ho2: There is no significant difference in the level of psychological symptoms across the following demographic variables: age, school grade, GPA, academic programs, number of siblings, parental status, and student living arrangement).

Ho3:. There is no significant relationship between the following demographic variables: age, school grade, GPA, academic programs, number of siblings, parental status, and student living arrangement and the number of nurse room visits.

Significance of the Study

1. This study may help to highlight the relationship between the number of nurse room visits with selected school-related stressors and psychological symptoms for female high school students. Future studies may further be able to generalize any findings of this study to male high school students as well as across other cultures.
2. This study hopes to increase the awareness of psychological health issues among school nurses, school administrators, teachers, and high school students.
3. This investigation can serve as a pilot study to begin addressing the potential needs for a psychological measurement in the standard evaluation of physical complaints of students to school nurses.
4. The results of this study may benefit school administrators, school counselors, school nurses, teachers, and parents in identifying stressors that may impact the psychological and/or physical well being of high school students.
5. The study will be useful to school counselors and teachers who are responsible for the psychological and social development of students.

Definition of Terms

1. Demographic variables: These are defined as potential stressors in terms of age, school grade, GPA, academic programs, number of siblings, parental status, student living arrangement, and number of nurse room visits.
2. School grade: A student who is studying in school grade, where M.1 refers to grade 7th, M.2 refers to grade 8th, M.3 refers to grade 9th, M.4 refers to grade 10th, M.5 refers to grade 11th, and M.6 refers to grade 12th.

3. GPA: Academic achievement categorized by GPA below 2.74, GPA between 2.75 to 3.49, and GPA between 3.50 to 4.00.

4. Academic programs: The academic programs that can be selected in high school include: the Mathematics–Science Program, Mathematics–Languages Program, and Languages Program. Middle school students (M.1 to M.3) take the basic education course (no specialization).

5. Student living arrangement: Living with both parents, living with a single parent, living with relatives, or living in a dorm

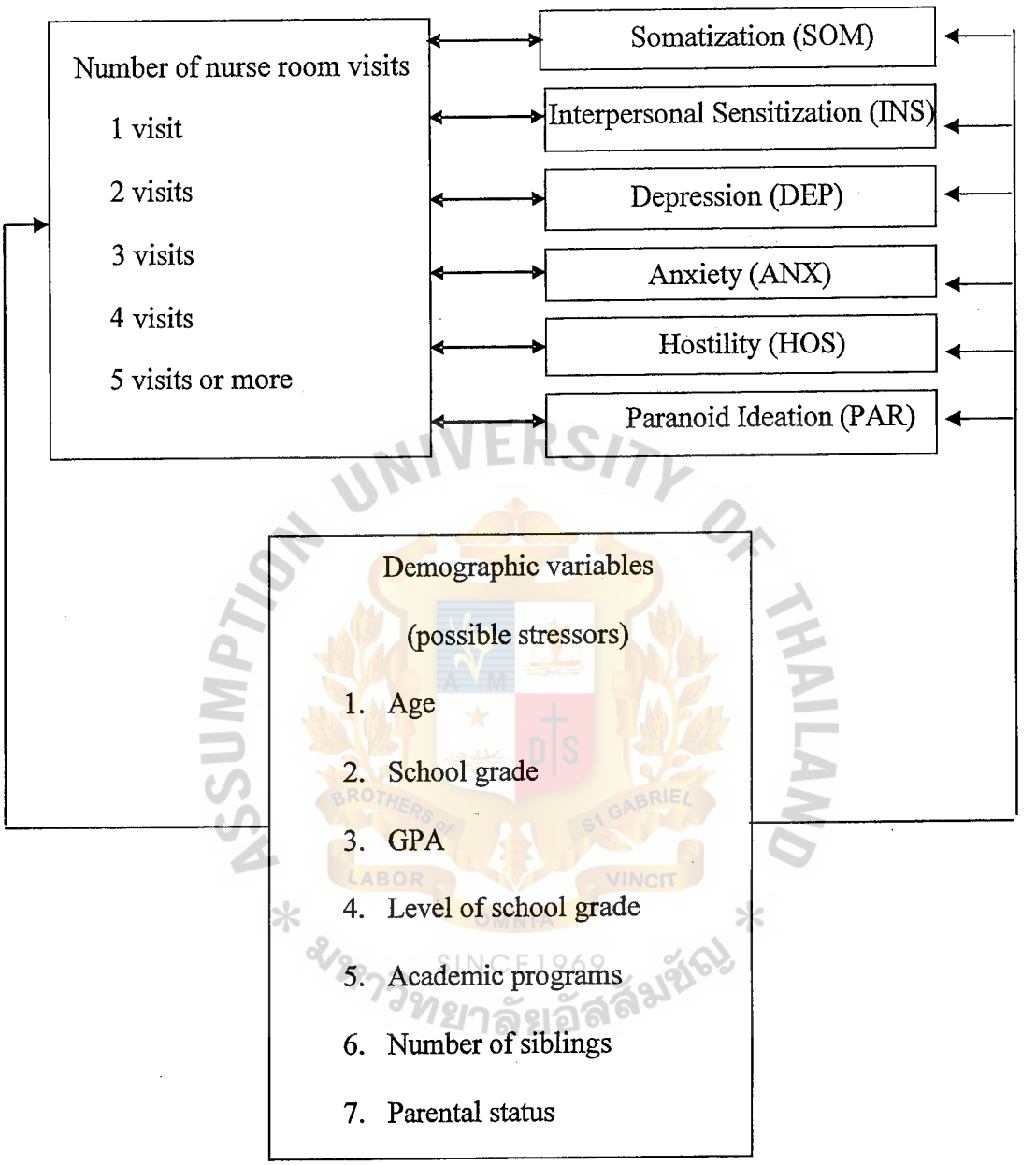
6. Number of nurse room visits: The number of nurse room visits, as reported by the student who visited the nurse room during the first semester of 2007, starting from May 16 until the day of data collection (September 21, 2007).

7. Psychological symptoms: There are 6 subscales of the modified SCL-90, including Somatization (SOM), Interpersonal Sensitivity (INS), Depression (DEP), Anxiety (ANX), Hostility (HOS) and Paranoid Ideation (PAR).

Somatization (SOM)	Distress arising from bodily perceptions as a physical illness.
Interpersonal Sensitivity (INS)	Feeling of personal inadequacy and inferiority in comparisons with others.
Depression (DEP)	Feeling of hopelessness, loss of energy, lack of motivation, and thoughts of suicide.

Anxiety (ANX)	Assesses behaviors such indicators as restlessness, nervousness, and the presence of panic attacks.
Hostility (HOS)	Thoughts, feelings, or actions characteristic of the negative affect state of anger, also included aggressive, irritability, rage, and resentment.
Paranoid Ideation (PAR)	Disordered mode of thinking. Projective thinking, hostility, suspiciousness, fear of loss of autonomy, and delusions.

Figure 1. Conceptual framework.



CHAPTER 2

LITERATURE REVIEW

Review of the Constructs/ Variables Under Study

Conceptualization of Stress

The concept of stress has been identified as a major syndrome of modern society. Even though some stress is helpful for individuals in meeting new challenges, persistently high and unrelieved stress can lead to psychological, physical, and behavioral ill health. Physical stress is primarily concerned with one's biological responses to an event; psychological stress focuses on one's cognitive and affective responses to the evaluation of threat, whilst social stress focuses on the resultant disruption of one's social system following an event. A high level of stress has been recognized as a predictor of depression and suicidal ideation in young people (Dixon, Heppner, Burnett, & Lips, 1993). Similarly, whilst physical ill health is caused by many factors, stress has also been found to be strongly associated with the onset of illness and perceived or actual deterioration in well-being (Byrne, 2000; Hong & Chongde, 2003; Reynolds, O'Koon, Papademetriou, Szczygiel, & Grant, 2001; and Sordi, 2004). Stress has been reported to lead to the development of negative affect and a reduction in psychological well-being (Beasley, Thompson, & Davidson, 2002).

Kugelmann (1992) and Newton (1995) stated that the concept of stress traces back to ancient Greek text which refer to stress as a vague notion of ill health. Selye (1976, 1956) was the first theorist to become interested in linking stress with physical disease and ill health in human beings. Hetherington (1984) added stress stimulus and response together, and defined stress as a broad interactive network of factors that includes stimulus, response, characteristics of the individual, interpretation and

appraisal of the event, and activation of the individual to modify or adapt to the situation. Although the definitions of stress are varied, most researchers agree that stress can be broadly defined as an individual's response when the physical or psychosocial demands of a situation exceed the individual's ability to adapt (Weinberg & Richardson, 1981).

Selye (1978) proposed that stress was a biological response which consists of all the non-specifically-induced changes within a biologic system. In Addition, stress was defined as an adaptive or defensive reaction to an event or stimulus which was labeled the defense reaction or body's response to stress as the General Adaptation Syndrome (G.A.S.). This occurs in three stages: the alarm reaction (A.R.), the alarm resistance (A.R.), and the stage of exhaustion (S.E.). The alarm reaction is a physiological response for alerting the defensive forces in the organism. In this stage, blood is diverted toward the skeletal muscles in order to prepare them for action. If the stress exposure remains, the stage of resistance or adaptation will follow. According to Selye, this stage is quite different or sometimes the opposite of the alarm reaction. The longer this stage lasts the greater the danger to the person. Magill (1993) stated that if an individual accepts the source of stress as a necessary part of life, the stressor may persist indefinitely. The person then gradually becomes more susceptible to a wide range of stress-related problems and diseases, such as headaches, hypertension, and cardiovascular disease..

As noted by Kenny, Carlson, McGuigan, and Sheppard (2000), they stated that stress-related illness can manifest within one or a combination of three primary areas: systemic or physical, psychological or emotional, and behavioral or social. Physical

stress is primarily concerned with the biological responses. Psychological stress focuses on cognitive and affective responses to the evaluation of threat, whilst social stress focuses on the resultant disruption of one's social system following an event.

The effects of external events on the body's systems are pervasive, continual, and apparently capable of generating a wide array of physical changes and complaints. Stress has also been found to contribute to physical illness, such as chronic illness and a decrease in immune functioning (Rawson, Bloomer, & Kendall, 2001). McNamara (2000) classified three categories of stressors affecting young people: normative, non-normative, and daily stressors. Normative stressors are composed of generic developmental challenges including physical changes, school transition, emergent sexuality, peer relation changes, and parent negotiation. Non-normative stressors represented unexpected demanding events including parental divorce, parental mental illness, physical disability, and family deaths. Finally, daily hassles are defined as irritable minor events in everyday life, which accumulate and lead to psychological symptoms. Suggested from McNamara (2000), physical changes in puberty could lead to stressful situations, such as dissatisfaction with their physical appearances. Schafer (1996) stated that fear of failure is a common difficulty for students. And, whilst fear of failure can help motivate individuals to prepare and perform well, extreme fear of failure can cause individuals to become emotionally and physically distressed. This might be more pronounced in a top school.

Cox (1987) defined stress as a perceptual phenomenon arising when an individual assesses the demand to the situation in relation to their ability to cope. From this point of view, when perceived imbalance in this comparison occurs, an experience

of stress and a stress response will occur. If the coping is effective, the stress should be reduced. In contrast, if coping is ineffective, a prolonged exposure to stress will occur and may lead to functional damage. Cox's system comprised five stages of stress. As individuals have psychological and physical needs, the first stage is embodied by the sources of demand related to the individual and their environment. The fulfillment of these needs is important to determining behavior. If there is an imbalance between the individuals' perceived demand and the individual's perception of their ability to meet this demand, the second stage of stress arises. In this stage, cognitive appraisal plays a crucial role as it does in Lazarus and Folkman's theory (1984). If the individual has high demand and he/she can cope with it, he/she will not be stressed. If the individual has high demand and perceives a limitation of he/she ability, then stress arises. For example, the stress may arise if individuals' lifestyle fails to match their aspirations. In the third stage, the response will be accompanied by physical, cognitive, and behavioral changes in an attempt to reduce the stressful nature of the demand. The fourth stage involves coping responses. Ineffective or inappropriate coping strategies may increase the experience of stress.

Biological Concept of Stress

A study from Anisman and Merali (1999) found that characteristics of a stressor, biological factors, and a person's past experiences may affect a person's response to stress. Some characteristics of a stressor that may effect the reaction to it are: the ability to decrease or eliminate the stressor, the predictability of the stressor, how long the stressor lasts, when and how often the stressor occurs. Biological factors include age, sex, and genetics. Mental health disorders in children and adolescents are caused by biology, environment, or a combination of the two. Examples of biological

factors are genetics, chemical imbalances in the body, and damage to the central nervous system, such as a head injury. Many environmental factors also can affect mental health, including exposure to violence, extreme stress, and the loss of an important person (National Mental Health Information Center, 2003).

Cognitive Stress

In contrast to the biological response definition of stress, Lazarus and Folkman (1984) proposed that an individual's perception of an event was a direct result of their cognitive appraisal of the event. Two cognitive processes, appraisal and coping, are important to the person/environment transaction. From this point of view, cognitive appraisal is a process of either consciously or unconsciously evaluating one's performance whilst interacting with the environment. They found that cognitive appraisal is the evaluative process used by the individual to determine why and to what extent a particular transaction or series of person-environment transactions results in stress.

Simultaneously, cognitive appraisal is also a process through which an individual evaluates and manages their environment and their emotional and behavioral responses. The perceived demands and pressures produced within these ongoing interactions may result in varying levels of stress for many individuals. The individual's response to such perceived stresses can also vary greatly. For example, one person may respond with anger, another with anxiety, and still another feel challenged to engage and interact in a more constructive manner. Lazarus and Folkman (1984) considered cognitive appraisal essential for understanding stress for two reasons: to understand variation factors among individuals under an event and the factors affecting this

interaction, and secondly to distinguish between benign and dangerous situations in which individuals survive and flourish. Before proceeding, some appraisal-related terminologies in the cognitive appraisal of stress should be clarified. They proposed that increasing levels of dysfunctional stress occur when an individual perceives that they do not have the necessary interpersonal and/or physical resources to successful negotiate or cope with the demands or pressures emanating from the environment.

Review of Recent Research

Demographic Variables and Depression

According to McNamara (2000), depression is one of the most common psychological outcomes and is strongly linked to stress. Depression is multi-faceted, and can manifest emotional, physical, and behavioral effects. Suicide is a common result of persistent and high levels of stress. Adding by McNamara (2000), daily hassles are irritating, frustrating, and distressing demands that differentiate everyday transactions. Daily stress is more likely to predict psychological and somatic symptoms in young people than life events. The study had also found one-third of youth's experience some form of psychosis, emotional disturbance, or depression. Depression is the most common psychological outcome. As noted previously, many studies from Kenny et al., (2000); Schafer (1996) have shown that depression is significantly linked to stress.

Henri, Katri, and Kati (2006) examined whether school performance in childhood and adolescence predicts depressive symptoms in adulthood over 12 to 21 years. Questionnaires measuring grade point average (GPA), having remedial education or incurring penalties during the current school term were obtained from parents when

the participants were aged 9, 12 and 15. Depressive symptoms were self rated by the participants 12 (n = 971), 17 (n = 990) and 21 (n = 955) years later at ages 21 to 36. The results yielded no systematic associations between indices of school performance and later depressive symptoms across the age cohorts, genders and follow-ups. A lower GPA predicted depressive symptoms in the 12- and 15-year-old girls 12 and/or 17 years later; remedial education predicted depressive symptoms 21 years later in the 9-year-old girls, and 12 and 17 years later in the 9-year-old boys. The results suggest that the association between school performance and depression may not be straightforward and potentially involves other psychological mechanisms.

Demographic Variables and Interpersonal Sensitivity to Stress

Hankin (2007) conducted a study of 538 eighth and 10th-grade students, aged 13 to 18 (average age: 14.9), from 18 Chicago-area schools. The students were asked to record their "worst event" of the day in their diaries every day for a week, at three different time points -- the study launch, and six and 12 months later. The worst events included getting kicked out of school, failing a quiz, arguing with a parent, getting mad at a girlfriend or boyfriend, and other problems. The study resulted that the girls reported more interpersonal stressors, while the boys had more achievement stressors. In an average week, the girls experienced twice as many interpersonal stressors as the boys did, while the boys averaged 0.50 interpersonal stressors a week, the girls averaged one about twice as many. However, the boys experienced 0.24 achievement stressors each week, while the girls reported just 0.16. The girls were also more adversely affected. For the same stressor, the study found that the girls reacted with more depression than the boys, resulted that genders respond in different ways to stress. The study also found that in a romantic fight between a boy and a girl, on average, a girl

will respond with more depression while a boy will go distract himself or playing basketball or doing some other activity. It was found that teenage girls encounter more stressors in life, especially in their interpersonal relationships and they react more strongly to those pressures, accounting in part for their higher levels of depression more than boy. Also when girls are experiencing more interpersonal stress, they exhibit more depressive symptoms than boys do.

Demographic Variables and Anxiety

Much evidence indicates that cumulative stress is significantly related to psychological health problems. The moderate or middle ranges of anxiety are a normal part of living, and are a positive influence on achievement in sports, career, and academic performance. In terms of high levels of anxiety, Poltavski, Ferraro, and Dakota (2003) stated that the greater a subject's stress level, the higher the anxiety and probability of illness. Schmeelk-Cone and Zimmerman (2003) presented support for the idea that individuals who reported chronic levels of stress also reported more anxiety and depression. Schaufeli and Enzmann (1998) found that physical distress, such as headaches, nausea, dizziness, restlessness, nervous tics and muscle pains, particularly neck and lower back pain. The individual may experience anxiety and can be afraid of losing control over his or her body. Furthermore, chronic fatigue, drowsiness and bodily weakness are all physical symptoms.

Demographic Variables and Hostility

Schafer (1996) described hostility as cynicism toward another's motives and values, easily aroused anger, and a proneness to expressing that anger towards others. In addition, hostile persons frequently enunciate their anger and distress towards others.

This hostility causes health problems such as somatic symptoms, anxiety/insomnia, social dysfunction, and depression.

In the longer term experience of stress, Peiffer (2001) pointed out that more severe warning signs of physical stress symptoms will occur, such as dizziness, headache, exhaustion, stomachache and butterflies in the stomach, indigestion, diarrhea, and sleep problems. Puca, Antonaci, Genco, Antonietta, Piazzolla and Prudenzano (1989) surveyed in psychological profile of 540 chronic headache cases, including migraine, tension, and mixed headache using the symptom check list (SCL)-90R inventory. The results obtained were viewed in relation to sex, age, illness onset, and illness duration. Females showed a positive correlation of somatization with present age and with age at onset of illness and a negative correlation of interpersonal sensitivity, hostility, and paranoid ideation with present age and age at onset of illness.

Schafer (1996) stated that shame is based on the individuals' perception of their internal image and the individuals' perception that one has a negative image in others' eyes. According to Schafer, the signs of emotional stress are often bizarre symptoms such as, fuzzy symptoms, forgetfulness, mental block, difficulty organizing thoughts, inability to concentrate, nightmares, etc. Thus, stress not only affects one's emotional state, but also one's physical and behavioral manifestations as well.

Stressors, Physical Illness and Psychological Problems

Russel and Deborah (2005) reported a clinical review about large international surveys that show that about 8% of adolescents report daily headaches, 10% daily backache, and 16% daily sleepiness in the mornings. Most adolescents with these

symptoms reflect not an organic disorder but an imbalance between the increasing educational, social, and sports demands on young people and physiological "debts" owed to rapid growth and sexual development. Adolescents, for example, need more sleep than children and adults, yet social and educational demands often mean that they sleep less. Adolescents may also have a physical hypersensitivity to changes in the growing body. Stress itself can be useful to perform at the optimum, however if the adrenal glands are overactive, then stress becomes detrimental and performance is effected; symptoms included anxiety, headaches, irritability, spaced out, insomnia, inability to concentrate, depression and procrastination (Engel, 2000).

According to Schaufeli and Enzmann (1998), psychological symptoms can be classified into five clusters: affective, cognitive, physical, behavioral and motivational. Additionally, three more levels include individual, interpersonal and organizational symptoms. Typical psychological responses to the psychological symptoms are headaches, or other physical complaints, confusion or poor concentration, poor performance, aggressive behaviors, withdrawal and isolation, changes in peer group or friends, psychosomatic symptoms (e.g., rashes, bowel problems, asthma), appetite and sleep disturbance. Furthermore, though its symptoms can occur soon after the event, the disorder often surfaces several months or even years later (World Health Organization Europe, 1996).

Robbins and Kirmayer (1991) claimed that individuals normalized ordinary somatic symptoms by attributing them to states like insomnia, tiredness or excessive noise or perceived them as psychological or somatic abnormalities. They proposed that causative attributes were determined by choosing between somatic, psychological and

normalizing explanations. Somatic symptoms which might be considered as an expression of psychological distress can lead to unnecessary medical evaluation or malpractice. (Kirmayer 2001) asserted that the somatic attributions may focus attention on bodily manifestations of distress and lead to the perception of physical symptoms that, in the absence of such attributions, would have been perceived as emotional in nature or would not have been perceived at all. These symptoms may represent a functional or somatoform disorder, where psychological problems are expressed through physical symptoms rather than through language.

A study from Schafer (1996), without the stress response, positive stress would be unavailable. The signs of the body preparing for physical action include: pupil dilation, quickened and shallow breathing, increased heart rate, cooling skin, chills running up and down the spine, and many more. When the sympathetic nervous system is over-stimulated repeatedly and over a long period of time, the body system may get overloaded and break down.

Stress and Adolescence

Arnett's (1999) view that adolescence is a period of heightened "storm and stress" is reconsidered in light of contemporary research. Gerler, Hogan, and Rourke (1991) asserted that typical adolescent complaints include "*Everyone is watching for me to make mistakes" and "I never have any time for myself*". Sometimes, adults have a tendency to discount what adolescents say, believing that most of the stress youngsters experience will pass as maturation occurs. This lack of empathy on the part of adults may leave adolescents feeling misunderstood and alienated. According to Heaven (1996), it is now widely accepted that the period of adolescence is stressful. It is a

period when there is a serious risk of developing stress-related illness. It is a period when many psychosocial factors have the potential to severely disrupt their sense of wellbeing, their psychological adjustment and physical health. Other related studied from Elkind (1990), students in middle schools frequently complain about the stress they experience in their everyday lives.

Becoming overly stressed can have many adverse side effects. Signs of psychological stress include anxiety, headaches, irritability, being spaced out, insomnia, inability to concentrate, depression and procrastination. It can make a teenager more susceptible to illness. It can also make them feel very tired and ill equipped to deal with life's ups and downs. A statement from Mental Health Services found that tensions and anxieties and possible guilt feelings are especially significant in preadolescence age between 11 and 14 years old. These were included school problems (e.g., fighting, withdrawal, loss of interest, attention seeking behaviors) and physical problems (e.g., headaches, vague pains, skin eruptions, bowel problems, psychosomatic complaints) which respond in this age group. For adolescents (14–18 years), a disaster may stimulate fears concerning the loss of their families and fears related to their bodies. It threatens their natural branching away from their family because of the family's need to pull together.

In addition, a longitudinal cohort study from Waldie (2001) has found further support for the relationship between stress and headache problems, also suggested that headaches in childhood were a risk factor for headaches and migraines in adolescent and young adulthood. The results of Waldie's study indicated that participants who had had a history of childhood headache were significantly more likely to report adolescent

stress than those without such a history. It also indicated that high-intensity stress during mid adolescence increased the likelihood of having a migraine diagnosis in young adulthood. Similarly, stress experienced during mid adolescence was positively associated with migraines and headaches diagnosed in young adulthood

Health Problem in Relation to Psychological Symptoms

According to Waldie's (2001) longitudinal study, it was found that stress is the most frequently identified cause of tension-type headaches, particularly when a high number of minor, everyday stressors have been identified. He also used his longitudinal cohort study to examine whether childhood headaches were associated with the appraisal of adolescent stress, and to determine whether primary headaches in young adulthood could be predicted on the basis of adolescent stress. Similarly, stress experienced during mid adolescence was positively associated with migraines and headaches diagnosed in young

Anxiety in Relation to Psychological Symptoms

Rethink (2000) states that anxiety can be viewed as a response to environmental stressors, such as the ending of a close relationship of exposure to a life-threatening disaster. When fear and anxiety are excessive they can be a significant problem and can have profound consequences on life. Anxiety disorders are the most common form of psychiatric illness. People who feel uncomfortable in a given situation or near a certain object will begin to avoid it. Such avoidance can limit a person's ability to live a normal life. Anxiety is a state of alarm in response to a vague sense of threat or danger. For some teenagers, anxiety becomes a chronic, high pitched state, interfering with their ability to attend school and to perform up to their academic

potential. Participating in extracurricular activities, making and keeping friends, and maintaining a supportive, flexible relationship within the family becomes difficulty. Sometimes anxiety is limited to generalized, free-floating feelings of uneasiness. At other times, it develops into panic attacks and phobias (Pruitt, 2000). According to Schafer (1996), the eight common symptoms of emotional stress are anxiety, depression, anger, fear, sadness, frustration, guilt, and shame. Anxiety and depression are the most common outcome of ongoing emotional stress (McNamara, 2000). McNamara (2000) defined non-normative stressors as unexpected or unusual stressful events including family disruption, divorce, and marital separation. Some studies have shown that parental divorce is associated with poor mental health in young people (McNamara, 2000; Saunders, 1998). Young people from divorced families are more likely to suffer from problem behaviors and delinquency, anxiety, stress, depression, inattention, and low educational attainment.

Schafer (1996) categorized anger as a secondary stress emotion that is led by other emotions, thoughts, actions, or circumstances. The results of unexpressed and unresolved anger will result in the same symptoms as anxiety, such as damage to tissues and organs. Fear is a stress emotion of apprehension about some perceived threat. Sometimes fear is not based on reality, particularly in cases of phobia, paranoia, and low levels of confidence. Fear is one of the symptoms of stress-related outcome (Rice, 1999). Schafer (1996) also found that sadness is a primary stress emotion and its dark feeling relates to real, imagined, or anticipated loss. A study by Saxema and Andrew (2002) found that the feeling of sadness can be continued without problem solving, this can affected the physical as well emotional health which was suffering from the stress

related illnesses called depression and anxiety. Resource center for Adolescent Child Health with support

Academic and School Environmental in Relation to Psychological Symptoms

Stress from the environment can cause internal arousal that can have negative effects on health (Fernandez, 1998). These negative effects are referred to as stress symptoms, where stress symptoms are symptoms that appear before a stressor (when the stressor is expected), during, or after the stressor occur as a result of ineffective coping skills (Breznitz & Goldberger, 1982). Environmental stressors and illness has been indicated in numerous studies. Fifty to eighty percent of all diseases are stress related in origin (Humphrey, 1986). Some medical experts believe that stress is the number one health and social problem (Fullerton & Ursano, 1997). Stress has been treated as stimulus (focusing on stressful stimuli or stressors), as a response (focusing on people's reactions to stressors), or as a process that includes stressful stimuli and reactions. It is an important dimension of the transactions; interactions and adjustment, between the person and the environment (Lazarus & Folkman, 1984).

MacGeorge, Samter, and Gillihan (2006) found that academic stress is associated with a variety of negative health outcomes, including depression, anxiety, and physical illness. Their current study examined the capacity of supportive communication received from friends and family (emotional and informational) to buffer the influence of academic stress on health. College students (N = 739; 210 males, 516 females, 16 gender not reported) completed measures of academic stress, supportive communication received, and health (depression, anxiety, and physical illness). Results indicated that the association between academic stress and depression

decreased as instrumental support increased. In addition, emotional support was negatively associated with depression across levels of academic stress. The findings are discussed with respect to alleviating negative health outcomes for individuals experiencing academic stress.

Alatorre and Reyes (1999) studied the relationship between stressful life events, internalized symptoms of stress, and academic achievement among a sample of Hispanic students in a large urban high school. A series of hierarchical multiple regressions revealed main effects for stressful life events and perceived competence on grades, anxiety, and depressive symptomatology. In addition, interaction terms were entered into the regression equations to determine if perceived competence was a moderator of stressful life events. Direct effects of stressful life events and perceived competence on school grades and internalized symptoms were found. Multiplicative interactions for perceived competence were not significant moderators of psychosocial stress on grades or internalized symptoms.

Parental Status in Relation to Psychological Symptoms

A study from Amato and Keith (1991) stated that although studies have shown that parental divorce is related to higher psychological symptoms for children, the effect size for these relations have been relatively small. One reason for the small effect size may be that, while some children develop psychological symptoms following divorce, others do not. In three separate studies using cross-sectional and prospective longitudinal designs, they found that divorce-related negative events were correlated with higher psychological symptoms (Sandler, Tein & West, 1994; Sandler, Wolchik, Braver, & Fogas, 1991).

Furthermore, recent research has begun to elucidate the mechanisms by which stressful events affect the well-being of children of divorce (i.e., mediators), and the conditions that affect the magnitude of the relations between stressful events and children's mental health (i.e., moderators). Single parents and step parents monitor their children less closely and know less about where their children are, who they are with, and what they are doing than parents in intact families (cited in Single parenthood and children's well-being, 1993). Based on recent evidence, single parents who are more involved in school have children who are less apt to experience problems (cited in Single parenthood and children's well-being, 1993). In addition, these differences in parent support and supervision are estimated to account for 20 to 40 percent of the differences in child well-being between single-parent and two-parent households; stepparents, however, do not make up for a biological parent (Sandefur, McLanahan & Wojtkiewicz, 1992).

Age in Relation to Psychological Symptoms

Some researchers have found that age is correlated with coping abilities. In one study, older children showed greater coping skills than younger children did. The researchers attributed this to a greater impulse control (Bittner & Carson, 1994). Another study had similar findings (Atha & Staats, 1990). Their explanations for the correlation are that emotionality decreases with age, and since they believe everyday hassles create more stress than major crises, the greater experience that comes with age increases a person's ability to evaluate the everyday hassles more realistically. Studies show that two of every 100 children may have major depression, and as many as eight of every 100 adolescents may be affected (National Institute of Health, 1999).

Sex in Relation to Psychological Symptoms

Sex is one of the factor that effects stress levels as well. It has been found that 41% of females suffer psychological distress compared to 26% of males (Colman, 1996). A study from Mackin (1995) stated that twice as many females have had at least one episode of depression than men. One reason for this may be that females feel that they must excel at home and at work to be success, whereas males feel that they must excel only at work. Though the responsibilities at home may be shared between males and females, most of the responsibilities are laid on female.

Murberg and Bru (2004) examined the relationship between school-related stress, gender and psychosomatic symptoms in a sample of 531 pupils in years (grades) 8, 9 and 10 (aged 13-16 years) from two compulsory schools in Norway. Result has shown that 18.1 percent reported being 'very much' affected by at least one of the assessed psychosomatic symptoms. Girls reported significantly more psychosomatic symptoms than boys. Results from multiple regression analysis showed that scores for the different stressors were significantly associated with psychosomatic symptoms. Findings suggest that frequency of psychosomatic symptoms might be related to how well or otherwise pupils adapt to the demands of school and to the interpersonal climate of the school.

According the analysis, gender seems to play a differentiating role here. Girls reported significantly more stress that was related to worries about school achievement, whereas boys reported significantly more stress arising from conflicts with parents and/or teachers. Finally, stress due to difficulties with peers at school was more closely correlated with psychosomatic symptoms among boys than among girls.

CHAPTER 3

METHODOGY

Research Design

This is a causal-comparative study that also looked into association between the independent and dependent variables. It was designed to describe and investigate the relationship between number of nurse room visits and types of psychological symptoms for Thai female middle and high school students. The study focused on students from Satriwithaya School, Bangkok, who visited the school nurse room in 2006. Satriwithaya School was established over a century ago and has a long history for pride and honour. Among the greatest pride is it is an old school of the Princess Mother, who studied from age 8 years old in 1908 to age 13 years old in 1913. Satriwithaya School was named a winner for a Royal award, both for the school and its students in 1991 (Satriwithaya School, 2003). This school was selected for this study based on the school's history as one of most reputable in Bangkok (the sample was limited only for girl students to control the gender differences).

Participants of the Study

The population of the study was computed by total number of students, in Satriwithaya School which was 3,500 students, total visits the school nurse 10,442 visits in all types of illnesses, 3,213 visits in headaches and stomachaches in 2006. The sample was selected age between 13-18 years old, studying in M.1-M.6 (school grade 7^{th}-12^{th}) of the 1^{st} semester of 2007. Purposive sampling was used to obtain the student respondents who had visited the school nurse room during August 6 to September 21, 2007. The Yamane scale (Yamane, 1976; see Figure 2) was used to determine the sample size and it recommended the distribution of 360 questionnaires.

Figure 2. Yamane sample size calculation.

$$n = \frac{N}{1+Ne2}$$

$$n = \frac{3,500}{1+3,500(0.05)2}$$

$$n = 358.97$$

Instrumentation

A set of questionnaires was composed of 2 parts: the demographic questionnaire and a modification of the Symptoms Checklist 90 (SCL-90). The questionnaire requires a brief introduction by a nurse, technician, or clinical interviewers to ensure validity (Derogatis & Cleary, 1977).

The first part of the questionnaire was the demographic questionnaire which was designed by the researcher. The demographic questionnaire involved the variables of age, school grade, GPA, academic programs, number of nurse room visits, number of siblings, parental status, and student living arrangement.

The second part of the questionnaire was extracted from Symptom Distress Check List -90 (SCL-90), which originated from the Hopkins Symptom Check List (HSCL; Derogatis & Lipman, 1973) which has been translated in Thai version by Chooprayoon (1978). It has been used by clinical psychiatrists in the Department of Thai Mental Health, in Somdej Chaophraya Hospital for in-patient intakes since 1977. The SCL-90 serves as an outcome measure to assess treatment effectiveness, measures of change with treatment, psychopharmacology outcomes and for research studies.

There were four normative groups for each sex: inpatients, outpatients, non patients, and adolescents. The SCL-90 is a self-report questionnaire symptom inventory to reflect the various aspects of psychological symptoms patterns of community, medical and psychiatric respondents which they fill out themselves. Each of the nine symptom dimensions is comprised of 6-13 items. The scores on each dimension (subscale) are mean symptom scores and expressed as a profile of the nine symptom dimensions.

Stability coefficients (test-retest reliability) for the SCL-90 have generally been adequate across a range of patient groups and test-retest intervals. The study with a test-retest interval of 1 week for 94 mixed psychiatric outpatients had a range of 0.78–0.90. The second study with a 10-week interval between tests had correlation coefficients ranging from 0.68 to 0.80 (Derogatis, 1983).

For the interval coefficients of Thai version described by Chooprayoon (1978) specified comparison the average score with the standard score (Normalize T-score), the mental health level of different symptoms of those undergraduate students were in the normal level (normalized T-score of 40-60). The conclusion of non-parametric statistics analysis showed that the mental health score in 9 symptoms were different by academic years or disciplines for students at the 0.05 level of significance (Chooprayoon, 1978). Respondents rate each item in terms of the amount of discomfort that the symptom has caused in the past 7 days with response on a five-point Likert-type scale of distress scores ranging from 0 to 4, "0=not at all", "1=a little bit", "2=moderately", "3=quite a lot", and "4=extremely".

The selected instrument (SCL-90) was modified to reduce the number of items in order to have a more appropriate administration time for students who visit the nurse room with illnesses. The final questionnaire had 45 items with 6 subscales, modified from the original 90 items with 9 subscales.

Three subscales of the SCL-90 were deleted: Obsessive-Compulsive (O-C), Phobic anxiety (PHO) and Psychoticism (PSY). The Obsessive-Compulsive (O-C) was deleted by the researcher following a supportive statement from a study of the assessment of psychiatric symptoms using the SCL-90 (Holi, 1999) – for example, in a study of 54 outpatients with obsessive-compulsive disorder (OCD), the O-C scale correlated significantly with other scales that measure obsessive-compulsive symptoms, but it was generally more strongly related to the SCL-90R DEP and ANX scales than to other measures of obsessive-compulsive symptoms, indicating questionable divergent validity. The findings also suggested that the O-C scale may be insensitive in assessing change in obsessive compulsive symptoms. In another study, the O-C scale was examined using a multi-trait multi-method approach in a sample of 54 outpatients with OCD. The O-C scale proved to be internally consistent, but the evidence for convergent validity was mixed, and the results suggested poor discriminative and criterion-related validities. Overall, the SCL-90-R was concluded to be a poor measure of OCD symptoms (Woody, Steketee, & Chambless, 1995). Regarding the other two subscales, Phobic anxiety (PHO) and Psychoticism (PSY) were deleted because the researcher felt these were inappropriate in terms of intensity.

Nevertheless, the research did a pilot test with the modified SCL-90 scale of 45 items with 30 students. The specific modifications and reliabilities for each subscale follow next.

The modified somatization (SOM) scale used was selected 9 items from the total 12 items of original SCL-90 which included items 1, 2, 3, 13, 14, 15, 22, 29 and 38. This dimension reflects distress arising from bodily perceptions. All of them may, naturally, be reflections of a physical illness. At the pretest, the alpha was 0.67 (*n*= middle and high school 30 students).

The modified interpersonal sensitivity (INS) scale used was selected 7 items from the total 9 items of original SCL-90 which included items 4, 16, 31, 32, 33, 34 and 39. This dimension focuses on feelings of personal inadequacy and inferiority in comparisons with others. Self-deprecation, uneasiness, and discomfort during interpersonal interactions are included. At the pretest, the alpha was 0.73 (*n*= middle and high school 30 students).

The modified Depression (DEP) scale used was selected 10 items from the total 13 items of original SCL-90 which included items 5, 6, 17, 23, 24, 25, 26, 35, 40 and 41. Most of the typical symptoms of depressive syndromes according to current diagnostic criteria are included. These items cover symptoms such as feelings of hopelessness, loss of energy, lack of motivation, and thoughts of suicide. At the pretest, the alpha was 0.68 (*n*= middle and high school 30 students).

The modified Anxiety (ANX) scale used was selected 11 items from the total 10 items of original SCL-90 which included items 7, 8, 9, 10, 18, 19, 20, 30, 36, 44 and 45. Assesses behaviors associated with high manifest anxiety including such indicators as restlessness, nervousness, and the presence of panic attacks. At the pretest, the alpha was 0.73 (*n*= middle and high school 30 students).

The modified Hostility (HOS) scale used was selected of 4 items from the total 6 items of original SCL-90 which included items 11, 12, 21 and 42. Thoughts, feelings, or actions characteristic of the negative affect state of anger are reflected here. Qualities such as aggression, irritability, rage, and resentment are included. At the pretest, the alpha was 0.81 (*n*= middle and high school 30 students).

The modified Paranoid ideation (PAR) scale used was selected 4 items from the total 6 items of original SCL-90 which included items 27, 28, 37 and 43. Paranoid ideation is represented here as a disordered mode of thinking. Projective thinking, hostility, suspiciousness, grandiosity, centrality, fear of loss of autonomy, and delusions are viewed as primary reflections of this disorder. At the pretest, the alpha was 0.75 (*n*= middle and high school 30 students).

The overall Chronbach's Alpha for the overall modified SCL-90 test in this study was obtained 0.943 (N=30).

Data Collection Procedure

Permission had been obtained from the director of the school. A letter of study approval was submitted to the director of Satriwithaya School on 1 August 2007

and has been approved prior to conducting the data collection and analysis. The data collection was performed within a school nurse room for 7 weeks starting from 6 August, 2007 to 21 September, 2007. For this study, the school nurses were required to distribute a set of questionnaires to all sick students who visited the nurse room during the period to complete the questionnaire. The introduction was short but allowed time for the students to ask questions. Administration instructions were given to the school nurse to conduct the study and administer the questionnaires to the students, and required 10 minutes to complete. The typical time for administrative instruction is 10-12 minutes, including instructions. The standard timeline with regard to symptoms for the SCL-90 is "7 days including today", but it was designed with a flexible time window so that evaluations over other specific periods of time can be made (Derogatis, 1983).

Data Analysis

The analysis of data was performed using SPSS 12.0 software for Windows. The data analysis was divided into two parts to answer the research questions: preliminary analysis and research questions testing. ANOVA, descriptive analysis, the missing data, the central tendency (mean and median), and frequencies for each variable were used to examine the accuracy of data by assessing the shape of the distribution in this study.

CHAPTER 4

RESULTS

Presentation and Analysis of Data

The results are presented in two sections. The first section looks at the data descriptively, classifying SCL-90 scores by "low" (normal) and "high" (clinically significant) across the demographic variables. The second part presents the results of statistical analysis using SPSS version 12.0, according to the research hypotheses.

Part I: Demographic Table

Table 1

Analysis of Demographic Variables of the Participants

Summary		N	%
Cases	Valid	347	96.4
	Excluded	13	3.6
	Total	360	100.0
Age			
13 years		91 (*n*)	25.3 (%)
14 years		70 (*n*)	19.4 (%)
15 years		69 (*n*)	19.2 (%)
16 years		52 (*n*)	14.4 (%)
17 years		62 (*n*)	17.2 (%)
18 years		16 (*n*)	4.4 (%)
missing		-	-
Total		360 (*n*)	100.0 (%)

School grade		
M.1 (7^{th})	54 (*n*)	15.0 (%)
M.2 (8^{th})	51 (*n*)	14.2 (%)
M.3 (9^{th})	64 (*n*)	17.8 (%)
M.4 (10^{th})	69 (*n*)	19.2 (%)
M.5 (11^{th})	61 (*n*)	16.9 (%)
M.6 (12^{th})	61 (*n*)	16.9 (%)
missing	-	-
Total	360 (*n*)	100.0 (%)
GPA		
Lower than 2.74	40 (*n*)	11.1 (%)
Between 2.75 – 3.49	99 (*n*)	27.5 (%)
Between 3.50 – 4.00	219 (*n*)	60.8 (%)
missing	2 (*n*)	0.6 (%)
Total	360 (*n*)	100.0 (%)
Level of school grade		
Middle school student	160 (*n*)	44.4 (%)
High school student	200 (*n*)	55.6 (%)
missing	-	-
Total	360 (*n*)	100.0 (%)
Academic programs		
Middle School Program	160 (*n*)	44.4 (%)
Mathematics–Science Program	96 (*n*)	26.7 (%)
Mathematics–Languages Program	35 (*n*)	9.7 (%)
Languages Program	69 (*n*)	19.2 (%)
missing	-	-
Total	360 (*n*)	100.0 (%)
Number of siblings		
Only 1 child	59 (*n*)	16.4 (%)
2 siblings (respondent included)	174 (*n*)	48.3 (%)
3 siblings (respondent included)	90 (*n*)	25.0 (%)
4 siblings (respondent included)	29 (*n*)	8.1 (%)

5 siblings or more (respondent included)	4 (*n*)	1.1 (%)
missing	4 (*n*)	1.1 (%)
Total	360 (*n*)	100.0 (%)
Parental status		
Parent live together	321 (*n*)	89.2 (%)
Divorce	32 (*n*)	8.9 (%)
missing	7 (*n*)	1.9 (%)
Total	360 (*n*)	100.0 (%)
Student living arrangement		
Live with Parent	300 (*n*)	83.3 (%)
Live with a Single parent	26 (*n*)	7.2 (%)
Live with Relatives	17 (*n*)	4.7 (%)
Live in a Dorm	12 (*n*)	3.3 (%)
missing	5 (*n*)	1.4 (%)
Total	360 (*n*)	100.0 (%)
Number of nurse room visits		
1 visit	125 (*n*)	34.7 (%)
2 visits	71 (*n*)	19.7 (%)
3 visits	53 (*n*)	14.7 (%)
4 visits	33 (*n*)	9.2 (%)
5 visits or more	45 (*n*)	12.5 (%)
missing	33 (*n*)	9.2 (%)
Total	360 (*n*)	100.0 (%)

* Values are number unless otherwise noted.

The questionnaires were distributed by the school nurse to 360 female students from Satriwithaya School who visited to the school nurse room during 6 August to 21 September, 2007, and which returned at a 100% response rate. In a study of 360 middle and high school female students, the majority of participants were 230 students (63.9%) aged between 13 - 15 years and the minorities of participants were 130 students (36.1 %) aged between 16 - 18 years.

The majority of participants were high school students (55.6%) with a major in the Mathematics–Science Program (26.7%), then the Languages Program (19.2%). The middle school students were in the minority (44.4%) and have not yet been required to select an academic program. Most of students received a GPA between 3.50 and 4.00 (60.8%); a GPA between 2.74 and 3.49 (27.5%), and a GPA below 2.74 (11.1%).

Most of students (73.3%) have 2-3 siblings and 16.4% reported being an only child in the family. The parental status was mostly living together (89.2%), and most students live together with the parent (83.3%). There were only 8% not living with the parent. Those who did not answer about parental status and student living arrangement were 1.9% and 1.4% respectively, which were excluded. There were 196 students (54.47%) who reported 1-2 time nurse room visits, whereas visits of 3 times and above were 131 students (36.4%); 33 students did not answer (9.2%).

Part II: SCL-90 (Symptom Check List 90 Revision)

Table 2

Descriptive Data for the Mean of the Subscales Scores on the Modified SCL-90

Total Score of Items							
N	SOM	INS	DEP	ANX	HOS	PAR	MODIFIED SCL-90
Valid	351	353	351	351	352	352	347
Missing	9	7	9	9	8	8	13
Mean	6.08	6.22	8.66	9.98	3.50	3.51	37.97

From Table 2, the obtained mean scores for the subscales were: Somatization

(SOM), 6.08 (33.77%) of a possible mean of 18; Interpersonal Sensitivity (INS), 6.22 (44.42%)of a possible mean of 14; Depression (DEP), 8.66 (43.30%)of a possible mean of 20; Anxiety (ANX), 9.98 (45.36%) of a possible mean 22; Hostility (HOS), 3.50 (43.75%) of a possible mean of 8; and Paranoid Ideation (PAR), 3.51 (43.87%)of a possible mean of 8. The percentage mean scores of each subscale were found to be lower than the average.

Table 3

ANOVA Test of Association Between Groups and Within Groups of the Nurse Room Visits and Modified SCL-90

Total Score of Items		Sum of Squares	*df*	Mean Square	*F*	Sig.
Somatization (SOM)	Between Groups (Combined)	259.542	4	64.885	4.748	*.001
	Within Groups	4277.213	313	13.665		
	Total	4536.755	317			
Interpersonal Sensitivity (INS)	Between Groups (Combined)	48.975	4	12.244	.776	.542
	Within Groups	4971.712	315	15.783		
	Total	5020.688	319			
Depression (DEP)	Between Groups (Combined)	79.625	4	19.906	.738	.567
	Within Groups	8441.230	313	26.969		
	Total	8520.855	317			
Anxiety (ANX)	Between Groups (Combined)	392.604	4	98.151	2.631	*.034
	Within Groups	11713.283	314	37.303		
	Total	12105.887	318			
Hostility (HOS)	Between Groups (Combined)	36.735	4	9.184	2.027	.090

	Within Groups	1427.265	315	4.531		
	Total	1464.000	319			
Paranoid Ideation (PAR)	Between Groups (Combined)	35.513	4	8.878	1.535	.192
	Within Groups	1816.010	314	5.783		
	Total	1851.524	318			
Psychological Symptom	Between Groups (Combined)	3459.429	4	864.857	2.077	.084
	Within Groups	129087.543	310	416.411		
	Total	132546.971	314			

*Level of significance 0.05

From Table 3, Interpersonal sensitivity (F=.776, p=.542), Depression (F=.738, p=.567), Hostility (F=2.027, p=.090), and Paranoid Ideation (F=1.535, p=.192) were found not significantly associated with the number of nurse room visits. Somatization (F=4.748, p=.001) and Anxiety (F=2.631, p=.034) were found to be a significant associated with the number of nurse room visits.

Table 4

Post Hoc Tests (Multiple Comparisons -Bonferroni) Between Somatization (SOM) and Number of Nurse Room Visits, and between Anxiety (ANX) and Number of Nurse Room Visits

Dependent Variable	(I) Number of nurse room visits	(J) Number of nurse room visits	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Total Score of Items on Somatization (SOM)	1 visit	2 visits	-1.378	.558	.141	-2.95	.20
		3 visits	-1.510	.615	.146	-3.25	.23
		4 visits	-1.196	.752	1.000	-3.32	.93

		5 visits or more	-2.574(*)	.643	.001	-4.39	-.76
	2 visits	1 visit	1.378	.558	.141	-.20	2.95
		3 visits	-.132	.685	1.000	-2.07	1.80
		4 visits	.181	.810	1.000	-2.11	2.47
		5 visits or more	-1.196	.710	.931	-3.20	.81
	3 visits	1 visit	1.510	.615	.146	-.23	3.25
		2 visits	.132	.685	1.000	-1.80	2.07
		4 visits	.314	.851	1.000	-2.09	2.72
		5 visits or more	-1.064	.756	1.000	-3.20	1.07
	4 visits	1 visit	1.196	.752	1.000	-.93	3.32
		2 visits	-.181	.810	1.000	-2.47	2.11
		3 visits	-.314	.851	1.000	-2.72	2.09
		5 visits or more	-1.378	.871	1.000	-3.84	1.09
	5 visits or more	1 visit	2.574(*)	.643	.001	.76	4.39
		2 visits	1.196	.710	.931	-.81	3.20
		3 visits	1.064	.756	1.000	-1.07	3.20
		4 visits	1.378	.871	1.000	-1.09	3.84
Total Score of Items on Anxiety (ANX)	1 visit	2 visits	-1.927	.913	.356	-4.51	.65
		3 visits	-.813	1.023	1.000	-3.71	2.08
		4 visits	-1.046	1.243	1.000	-4.56	2.47
		5 visits or more	-3.157(*)	1.063	.032	-6.16	-.15
	2 visits	1 visit	1.927	.913	.356	-.65	4.51
		3 visits	1.114	1.131	1.000	-2.08	4.31
		4 visits	.881	1.333	1.000	-2.89	4.65
		5 visits or more	-1.230	1.167	1.000	-4.53	2.07
	3 visits	1 visit	.813	1.023	1.000	-2.08	3.71
		2 visits	-1.114	1.131	1.000	-4.31	2.08
		4 visits	-.233	1.411	1.000	-4.22	3.75

		5 visits or more	-2.344	1.255	.627	-5.89	1.20
	4 visits	1 visit	1.046	1.243	1.000	-2.47	4.56
		2 visits	-.881	1.333	1.000	-4.65	2.89
		3 visits	.233	1.411	1.000	-3.75	4.22
		5 visits or more	-2.111	1.440	1.000	-6.18	1.96
	5 visits or more	1 visit	3.157(*)	1.063	.032	.15	6.16
		2 visits	1.230	1.167	1.000	-2.07	4.53
		3 visits	2.344	1.255	.627	-1.20	5.89
		4 visits	2.111	1.440	1.000	-1.96	6.18

* The mean difference is significance at the .05 level.

From Table 4, there was found to be a mean difference between 1 visit and 5 visits or more in Somatization (-2.574*) and in Anxiety (-3.157*). The obtained mean of 1 visit was smaller than 5 visits or more in Somatization and Anxiety. The Post-hoc comparison revealed that the difference in the scores of Somatization (SOM) and were only significant between those students who visited the nurse room one time those who visited 5 times or more.

Table 5

Measures of Association (Mean) between Somatization (SOM) and Number of Nurse Room Visits, and between Anxiety (ANX) and Number of Nurse Room Visits

Total Score of Items on	*Eta*	*Eta* Squared
Somatization (SOM) * Number of nurse room visits	.239	.057
Anxiety (ANX) * Number of nurse room visits	.180	.032

From Table 5, there was found to be a common variance shared by both

variables between Somatization (SOM) and number of nurse room visits, and between Anxiety (ANX) and the number of nurse room visits as follow explanation. The Somatization (SOM) *Eta* = 0.239, *Eta* Squared = .057, *Eta* Square x100 =5.7%, Anxiety (ANX) *Eta* = 0.180, *Eta* Squared =.032, *Eta* Squared x100 = 3.2%.

Table 6

ANOVA Test of Association between Age and modified SCL-90

Total Score of Items		Sum of Squares	*df*	Mean Square	*F*	Sig.
Somatization (SOM) * Age	Between Groups (Combined)	80.470	5	16.094	1.080	.371
	Within Groups	5139.296	345	14.897		
	Total	5219.766	350			
Interpersonal Sensitivity (INS) * Age	Between Groups (Combined)	34.551	5	6.910	.417	.837
	Within Groups	5744.214	347	16.554		
	Total	5778.765	352			
Depression (DEP) * Age	Between Groups (Combined)	85.876	5	17.175	.612	.691
	Within Groups	9689.099	345	28.084		
	Total	9774.974	350			
Anxiety (ANX) * Age	Between Groups (Combined)	292.025	5	58.405	1.508	.187
	Within Groups	13365.793	345	38.741		
	Total	13657.818	350			
Hostility (HOS) * Age	Between Groups (Combined)	48.385	5	9.677	2.080	.067
	Within Groups	1609.615	346	4.652		
	Total	1658.000	351			

Paranoid Ideation (PAR) * Age	Between Groups (Combined)	22.726	5	4.545	.752	.585
	Within Groups	2091.229	346	6.044		
	Total	2113.955	351			
Psychological Symptom * Age	Between Groups (Combined)	2060.277	5	412.055	.925	.465
	Within Groups	151850.489	341	445.309		
	Total	153910.767	346			

* The mean difference is significance at the .05 level.

From Table 6, there was no significant difference between ages and modified SCL-90 scores.

Table 7

ANOVA Test of Association between School Grade and Modified SCL-90

Total Score of Items								
School grade		SOM	INS	DEP	ANX	HOS	PAR	Modified SCL-90
M.1	Mean	5.50	6.67	8.12	9.30	3.28	3.60	36.41
	N	52	54	52	53	53	53	49
	Std. Deviation	3.734	4.238	5.483	5.905	2.107	2.575	20.258
M.2	Mean	5.78	5.90	8.72	9.53	3.04	3.60	36.71
	N	50	50	50	49	50	50	49
	Std. Deviation	3.495	3.945	4.625	5.849	2.147	2.286	20.143
M.3	Mean	6.11	6.02	8.32	10.79	3.52	3.24	38.00
	N	62	62	62	62	62	62	62
	Std. Deviation	4.480	4.518	5.765	8.019	2.267	2.720	25.095

M.4	lean	6.34	6.82	9.50	10.87	3.82	3.75	41.10
	N	68	68	68	68	68	68	68
	Std. Deviation	4.105	4.077	5.616	6.116	2.356	2.559	21.946
M.5	Mean	6.66	6.15	9.20	10.15	3.85	3.85	39.85
	N	61	61	61	61	61	61	61
	Std. Deviation	3.405	3.669	4.912	4.700	2.056	2.190	17.580
M.6	Mean	5.91	5.67	7.90	8.88	3.33	3.00	34.69
	N	58	58	58	58	58	58	58
	Std. Deviation	3.776	3.831	5.101	6.280	2.021	2.309	20.435
Total	Mean	6.08	6.22	8.66	9.98	3.50	3.51	37.97
	N	351	353	351	351	352	352	347
	Std. Deviation	3.862	4.052	5.285	6.247	2.173	2.454	21.091

* The mean difference is significance at the .05 level.

From Table 7, there was no significant difference in School grade and Modified SCL-90.

Table 8

ANOVA Test of Association between GPA and modified SCL-90

Total Score of Items								
GPA		SOM	INS	DEP	ANX	HOS	PAR	Modified SCL-90
Below 2.74	Mean	6.63	5.98	7.90	10.15	3.53	3.07	37.25
	N	40	40	40	40	40	40	40
	Std. Deviation	3.726	3.363	4.945	5.722	1.853	2.117	18.164

Between 2.75 and 3.49	Mean	6.26	6.51	9.20	10.96	3.76	3.61	40.39
	N	98	98	98	97	98	98	97
	Std. Deviation	4.361	4.433	6.368	7.065	2.483	2.535	24.652
Between 3.50 and 4.00	Mean	5.91	6.13	8.56	9.52	3.38	3.54	37.02
	N	212	214	212	213	213	213	209
	Std. Deviation	3.645	4.006	4.785	5.921	2.079	2.483	19.840
Total	Mean	6.09	6.22	8.66	9.99	3.50	3.51	37.99
	N	350	352	350	350	351	351	346
	Std. Deviation	3.864	4.057	5.292	6.252	2.176	2.457	21.118

* The mean difference is significance at the .05 level.

From Table 8, there was no significant difference in GPA and Modified SCL-90.

Table 9

ANOVA Test of Association Between Groups and Within Groups of Level of School Grade and Modified SCL-90

Total Score of Items		Sum of Squares	*df*	Mean Square	*F*	Sig.
Somatization (SOM) * Level of school grade	Between Groups (Combined)	46.445	1	46.445	3.133	.078
	Within Groups	5173.322	349	14.823		
	Total	5219.766	350			
Interpersonal Sensitivity (INS) * Level of school grade	Between Groups (Combined)	1.910	1	1.910	.116	.734
	Within Groups	5776.855	351	16.458		
	Total	5778.765	352			

Depression (DEP) * Level of school grade	Between Groups (Combined)	29.621	1	29.621	1.061	.304
	Within Groups	9745.354	349	27.924		
	Total	9774.974	350			
Anxiety (ANX) * Level of school grade	Between Groups (Combined)	8.045	1	8.045	.206	.650
	Within Groups	13649.773	349	39.111		
	Total	13657.818	350			
Hostility (HOS) * Level of school grade	Between Groups (Combined)	23.803	1	23.803	5.098	.025*
	Within Groups	1634.197	350	4.669		
	Total	1658.000	351			
Paranoid Ideation (PAR) * Level of school grade	Between Groups (Combined)	.610	1	.610	.101	.751
	Within Groups	2113.345	350	6.038		
	Total	2113.955	351			
Psychological Symptom * Level of school grade	Between Groups (Combined)	510.811	1	510.811	1.149	.285
	Within Groups	153399.955	345	444.638		
	Total	153910.767	346			

*Level of significance 0.05

From Table 9, it was found that there were no significant difference in level of school grade and Somatization (F=3.133, p=.078), Interpersonal Sensitivity (F=.116, p=.734), Depression (F=1.061, p=.304), Anxiety (F=.206, p=.650), and Paranoid Ideation (F=.101, p=.751). There was only a significant difference in level of school grade and Hostility (F=5.098, p=.025).

Table 10

Measures of Association between Subscales and Level of School Grade

Total Scores of Items	*Eta*	*Eta* Squared
Somatization (SOM) * Level of school grade	.094	.009
Interpersonal Sensitivity (INS) * Level of school grade	.018	.000
Depression (DEP) * Level of school grade	.055	.003
Anxiety (ANX) * Level of school grade	.024	.001
Hostility (HOS) * Level of school grade	.120	.014
Paranoid Ideation (PAR) * Level of school grade	.017	.000
Psychological Symptom * Level of school grade	.058	.003

From Table 10, there was found to be a common variance shared by both variables between school grade and Hostility (HOS), where *Eta* = .120, *Eta* Squared = .014, *Eta* Square x100 =1.4%.

Table 11

Descriptive Statistics (Mean) of School Grade Level and Level of Significance in Modified SCL-90

Total Score of Items								
Level of school grade		SOM	INS	DEP	ANX	HOS	PAR	Modified SCL-90
Middle school student	Mean	5.67	6.14	8.33	9.81	3.21	3.46	36.61
	N	156	158	156	157	157	157	153
	Std. Deviation	3.764	4.194	5.086	6.499	2.109	2.505	21.092

High school level	Mean	6.41	6.29	8.92	10.11	3.73	3.55	39.05
	N	195	195	195	194	195	195	194
	Std. Deviation	3.917	3.943	5.438	6.049	2.201	2.418	21.082
Total	Mean	6.08	6.22	8.66	9.98	3.50	3.51	37.97
	N	351	353	351	351	352	352	347
	Std. Deviation	3.862	4.052	5.285	6.247	2.173	2.454	21.091

* The mean difference is significance at the .05 level.

From Table 11, it was found that the mean value of Hostility (HOS) for High school students was 3.73 while the mean value for Middle school students was 3.21.

Table 12

ANOVA Test of Association Between Groups and Within Groups of Academic Programs and Modified SCL-90

Total Score of Items		Sum of Squares	*df*	Mean Square	*F*	Sig.
Somatization (SOM) * Academic programs	Between Groups (Combined)	56.608	3	18.869	1.268	.285
	Within Groups	5163.159	347	14.879		
	Total	5219.766	350			
Interpersonal Sensitivity (INS) * Academic programs	Between Groups (Combined)	25.605	3	8.535	.518	.670
	Within Groups	5753.160	349	16.485		
	Total	5778.765	352			

Depression (DEP) * Academic programs	Between Groups (Combined)	233.481	3	77.827	2.830	.038*
	Within Groups	9541.493	347	27.497		
	Total	9774.974	350			
Anxiety (ANX) * Academic programs	Between Groups (Combined)	61.721	3	20.574	.525	.665
	Within Groups	13596.096	347	39.182		
	Total	13657.818	350			
Hostility (HOS) * Academic programs	Between Groups (Combined)	35.847	3	11.949	2.563	.055
	Within Groups	1622.153	348	4.661		
	Total	1658.000	351			
Paranoid Ideation (PAR) * Academic programs	Between Groups (Combined)	47.528	3	15.843	2.668	.048*
	Within Groups	2066.426	348	5.938		
	Total	2113.955	351			
Psychological Symptom * Academic programs	Between Groups (Combined)	1958.920	3	652.973	1.474	.221
	Within Groups	151951.846	343	443.008		
	Total	153910.767	346			

*Level of significance 0.05

From the table 12, it was found that there were no significant difference in Academic programs and the levels of psychological symptoms in Somatization (F=1.268, p=.285), Interpersonal sensitivity (F=.518, p=.670), Anxiety (F=.525, p=.665), and Hostility (F=2.563, p=.055).

Table 13

One Way ANOVA Test of Association Between Groups and Within Groups of Academic Programs and Level of Significance in Modified SCL-90

		Sum of Squares	*df*	Mean Square	*F*	Sig.
Depression (DEP)	Between Groups	233.481	3	77.827	2.830	.038*
	Within Groups	9541.493	347	27.497		
	Total	9774.974	350			
Paranoid Ideation (PAR)	Between Groups	47.528	3	15.843	2.668	.048*
	Within Groups	2066.426	348	5.938		
	Total	2113.955	351			

*Level of significance 0.05

From the table 13, there were found to be a significant difference in Depression (F=2.83, p=.038) and Paranoid ideation (F=2.668, p=.048).

Table 14

Measures of Association between Academic Programs and Modified SCL-90

Total Score of Items on	*Eta*	*Eta* Squared
Somatization (SOM) * Academic programs	.104	.011
Interpersonal Sensitivity (INS) * Academic programs	.067	.004
Depression (DEP) * Academic programs	.155	.024
Anxiety (ANX) * Academic programs	.067	.005
Hostility (HOS) * Academic programs	.147	.022
Paranoid Ideation (PAR) * Academic programs	.150	.022

Psychological Symptom * Academic programs	.113	.013

From the table 14, Depression (DEP) and Paranoid ideation (PAR) shared a common variation, where the Depression (DEP) *Eta* = .155, *Eta* Squared = .024, *Eta* Square x100 =2.4%; the Paranoid ideation (PAR) *Eta* = .150, *Eta* Squared = .022, *Eta* Square x100 =2.2%.

Table 15

Descriptive Statistics (Mean) of Academic Programs and Modified SCL-90

Academic programs		SOM	INS	DEP	ANX	HOS	PAR	Modified SCL-90
Middle school program	Mean	5.67	6.14	8.33	9.81	3.21	3.46	36.61
	N	156	158	156	157	157	157	153
	Std. Deviation	3.764	4.194	5.086	6.499	2.109	2.505	21.092
Mathematics – Science Program	Mean	6.60	6.61	9.83	10.38	3.87	4.01	41.31
	N	95	95	95	95	95	95	95
	Std. Deviation	3.896	4.048	5.396	6.007	2.199	2.460	21.087
Mathematics-Languages Program	Mean	6.48	6.29	9.10	10.81	4.03	3.52	40.23
	N	31	31	31	31	31	31	31
	Std. Deviation	4.242	3.814	5.534	6.025	2.401	2.322	21.838
Languages Program	Mean	6.10	5.84	7.58	9.43	3.41	2.93	35.37
	N	69	69	69	68	69	69	68
	Std. Deviation	3.835	3.864	5.254	6.141	2.103	2.290	20.526
Total	Mean	6.08	6.22	8.66	9.98	3.50	3.51	37.97
	N	351	353	351	351	352	352	347
	Std. Deviation	3.862	4.052	5.285	6.247	2.173	2.454	21.091

The mean difference is significance at the .05 level.

From the table 15, the Depression (DEP) mean scores for middle school students (no program required) was 8.33, for high school students: Mathematics-Science program had a mean of 9.83, Mathematics-Languages program had a mean of 9.10 and the Languages program had a mean of 7.58.

Also the Paranoid ideation (PAR) mean scores for middle school students (no program required) was 3.46, for high school students: Mathematics-Science program had a mean of 4.01, Mathematics-languages program had a mean of 3.52 and the Languages program had a mean of 2.93.

Table 16

Post Hoc Tests Multiple Comparisons (Bonferroni) Between Academic Programs, and Depression (DEP) and Paranoid Ideation (PAR)

Dependent Variable	(I) Academic programs	(J) Academic programs	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Depression (DEP)	Middle school program	Mathematics–Science Program	-1.498	.682	.173	-3.31	.31
		Mathematics–Languages Program	-.763	1.031	1.000	-3.50	1.97
		Languages Program	.754	.758	1.000	-1.26	2.77
	Mathematics–Science Program	Middle school program	1.498	.682	.173	-.31	3.31
		Mathematics–Languages Program	.735	1.085	1.000	-2.14	3.61
		Languages Program	2.252(*)	.829	.042	.05	4.45

	Mathematics–Languages Program	Middle school program	.763	1.031	1.000	-1.97	3.50
		Mathematics–Science Program	-.735	1.085	1.000	-3.61	2.14
		Languages Program	1.517	1.134	1.000	-1.49	4.53
	Languages Program	Middle school program	-.754	.758	1.000	-2.77	1.26
		Mathematics–Science Program	-2.252(*)	.829	.042	-4.45	-.05
		Mathematics-Languages Program	-1.517	1.134	1.000	-4.53	1.49
Paranoid Ideation (PAR)	Middle school program	Mathematics–Science Program	-.546	.317	.515	-1.39	.29
		Mathematics-Languages Program	-.051	.479	1.000	-1.32	1.22
		Languages Program	.537	.352	.766	-.40	1.47
	Mathematics–Science Program	Middle school program	.546	.317	.515	-.29	1.39
		Mathematics–Languages Program	.494	.504	1.000	-.84	1.83
		Languages Program	1.083(*)	.385	.031	.06	2.11
	Mathematics–Languages Program	Middle school program	.051	.479	1.000	-1.22	1.32
		Mathematics–Science Program	-.494	.504	1.000	-1.83	.84
		Languages Program	.589	.527	1.000	-.81	1.99

	Languages Program	Middle school program	-.537	.352	.766	-1.47	.40
		Mathematics–Science Program	-1.083(*)	.385	.031	-2.11	-.06
		Mathematics–Languages Program	-.589	.527	1.000	-1.99	.81

From the table 16, a significant difference in means was found between the Mathematics–Science Program and Languages Program. The mean difference was found in Depression (DEP) 2.252(*), with Mathematics–Science means being higher.

The mean difference of Paranoid ideation (PAR) was 1.083(*) between the Mathematics–Science Program and Languages Program, with the Mathematic–Science being higher. The Post-hoc comparison revealed that the difference in the scores of Depression (DEP) and Paranoid ideation (PAR) were the only significant differences in modified subscales for those students who only studied the Mathematics–Science Program and the Languages Program.

Table 17

ANOVA Test of Association between Number of Siblings and Modified SCL-90

Total Scores of Items		Sum of Squares	*df*	Mean Square	*F*	Sig.
Somatization (SOM) * Number of siblings	Between Groups (Combined)	70.611	4	17.653	1.183	.318
	Within Groups	5104.588	342	14.926		
	Total	5175.199	346			

Interpersonal Sensitivity (INS) * Number of siblings	Between Groups (Combined)	21.449	4	5.362	.325	.861
	Within Groups	5669.301	344	16.481		
	Total	5690.751	348			
Depression (DEP) * Number of siblings	Between Groups (Combined)	25.560	4	6.390	.230	.922
	Within Groups	9522.227	342	27.843		
	Total	9547.787	346			
Anxiety (ANX) * Number of siblings	Between Groups (Combined)	13.341	4	3.335	.084	.987
	Within Groups	13551.517	342	39.624		
	Total	13564.859	346			
Hostility (HOS) * Number of siblings	Between Groups (Combined)	13.925	4	3.481	.730	.572
	Within Groups	1635.029	343	4.767		
	Total	1648.954	347			
Paranoid Ideation (PAR) * Number of siblings	Between Groups (Combined)	12.075	4	3.019	.500	.736
	Within Groups	2070.922	343	6.038		
	Total	2082.997	347			
Psychological Symptom * Number of siblings	Between Groups (Combined)	427.563	4	106.891	.238	.917
	Within Groups	151873.067	338	449.329		
	Total	152300.630	342			

*Level of significance 0.05

From the table 17, it was found that Number of siblings and modified SCL-90 were not significantly associated with the number of nurse room visits.

Table 18

ANOVA Test of Association Between Groups and Within Groups of Student Living Arrangement and Modified SCL-90

Total Scores of Items		Sum of Squares	*df*	Mean Square	*F*	Sig.
Somatization (SOM) * Student living arrangement	Between Groups (Combined)	91.668	3	30.556	2.058	.106
	Within Groups	5078.933	342	14.851		
	Total	5170.601	345			
Interpersonal Sensitivity (INS) * Student living arrangement	Between Groups (Combined)	120.986	3	40.329	2.506	.059
	Within Groups		344	16.094		
	Total		347			
Depression (DEP) * Student living arrangement	Between Groups (Combined)	127.367	3	42.456	1.550	.201
	Within Groups	9367.789	342	27.391		
	Total	9495.156	345			
Anxiety (ANX) * Student living arrangement	Between Groups (Combined)	199.067	3	66.356	1.714	.164
	Within Groups	13238.366	342	38.709		
	Total	13437.434	345			
Hostility (HOS) * Student living arrangement	Between Groups (Combined)	19.236	3	6.412	1.355	.257
	Within Groups	1623.427	343	4.733		
	Total	1642.663	346			
Paranoid Ideation (PAR) * Student living arrangement	Between Groups (Combined)	51.514	3	17.171	2.917	.034*
	Within Groups	2019.236	343	5.887		
	Total	2070.749	346			
Psychological Symptom * Student living arrangement	Between Groups (Combined)	3673.439	3	1224.480	2.801	.040*
	Within Groups	147737.114	338	437.092		
	Total	151410.553	341			

*Level of significance 0.05

As seen in table 18, it was found that there was no significant difference in Student living arrangement and Somatization (F=2.058, p=.106), Interpersonal Sensitivity (F=2.506, p=.059), Depression (F=1.550, p=.201), Anxiety (F=1.714, p=.164), and Hostility (F=1.355, p=.257) scores. However, it was found that Student living arrangement was a significantly associated with Paranoid Ideation (F=2.917, p=.034).

Table 19

Measures of Association between Student Living Arrangement and Modified SCL-90

	Eta	*Eta* Squared
Somatization (SOM) * Student living arrangement	.133	.018
Interpersonal Sensitivity (INS) * Student living arrangement	.146	.021
Depression (DEP) * Student living arrangement	.116	.013
Anxiety (ANX) * Student living arrangement	.122	.015
Hostility (HOS) * Student living arrangement	.108	.012
Paranoid Ideation (PAR) * Student living arrangement	.158	.025
Psychological Symptom * Student living arrangement	.156	.024

From the table 19, Paranoid ideation (PAR) shared a common variation with Student living arrangement, where *Eta* = .158, *Eta* Squared = .025, *Eta* Square x100 =2.5%.

Table 20

Descriptive Statistics (Mean) of Student Living Arrangement and Modified SCL-90

Student living arrangement		SOM	INS	DEP	ANX	HOS	PAR	Modified SCL-90
Live with parent	Mean	5.86	6.03	8.40	9.67	3.43	3.39	36.73
	N	291	293	291	291	292	293	288
	Std. Deviation	3.746	3.923	4.951	6.006	2.099	2.397	20.097
Live with single parent	Mean	7.00	6.23	9.85	10.77	4.27	3.54	41.65
	N	26	26	26	26	26	26	26
	Std. Deviation	4.418	4.246	6.679	6.452	2.906	2.789	24.861
Live with relatives	Mean	7.88	8.76	10.71	12.88	3.88	5.19	51.31
	N	17	17	17	17	17	16	16
	Std. Deviation	4.076	4.146	6.908	7.873	2.395	2.040	23.434
Live in a dorm	Mean	6.33	6.50	8.42	11.00	3.42	3.92	39.58
	N	12	12	12	12	12	12	12
	Std. Deviation	4.812	5.368	5.885	8.235	1.881	2.778	27.194
Total	Mean	6.06	6.20	8.62	9.96	3.52	3.50	37.89
	N	346	348	346	346	347	347	342
	Std. Deviation	3.871	4.038	5.246	6.241	2.179	2.446	21.072

From the table 20, the mean values in relation of Paranoid ideation (PAR) and Living with parent had a mean of 3.39, Living with single parent had a mean of 3.54, Living with relatives had a mean of 5.19, Live in a dorm had a mean of 3.92.

Table 21

Post Hoc Tests Multiple Comparisons (Bonferroni) between Student Living Arrangement and Modified SCL-90

Student living arrangement	Student living arrangement	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Live with parent	Live with single parent	-.153	.497	1.000	-1.47	1.16
	Live with relatives	-1.802(*)	.623	.024	-3.45	-.15
	Live in a dorm	-.531	.715	1.000	-2.43	1.37
Live with single parent	Live with parent	.153	.497	1.000	-1.16	1.47
	Live with relatives	-1.649	.771	.199	-3.69	.40
	Live in a dorm	-.378	.847	1.000	-2.63	1.87
Live with relatives	Live with parent	1.802(*)	.623	.024	.15	3.45
	Live with single parent	1.649	.771	.199	-.40	3.69
	Live in a dorm	1.271	.927	1.000	-1.19	3.73
Live in a dorm	Live with parent	.531	.715	1.000	-1.37	2.43
	Live with single parent	.378	.847	1.000	-1.87	2.63
	Live with relatives	-1.271	.927	1.000	-3.73	1.19

From the table 21, there was a significant difference between Live with relatives and Live in a dorm in Paranoid ideation subscale scores. The mean difference was 1.802(*), with living with relatives being higher in Paranoid ideation (PAR).

Table 22

Crosstab between Age and Number of Nurse Room Visits

			Number of nurse room visits					Total
			1 visit	2 visits	3 visits	4 visits	5 visits or more	
Age	13 years	Count	44	13	9	6	5	77
		Expected Count	29.4	16.7	12.5	7.8	10.6	77.0
	14 years	Count	28	14	8	4	11	65
		Expected Count	24.8	14.1	10.5	6.6	8.9	65.0
	15 years	Count	13	10	17	12	12	64
		Expected Count	24.5	13.9	10.4	6.5	8.8	64.0
	16 years	Count	16	16	8	4	7	51
		Expected Count	19.5	11.1	8.3	5.1	7.0	51.0
	17 years	Count	22	13	7	6	7	55
		Expected Count	21.0	11.9	8.9	5.6	7.6	55.0
	18 years	Count	2	5	4	1	3	15
		Expected Count	5.7	3.3	2.4	1.5	2.1	15.0
Total		Count	125	71	53	33	45	327
		Expected Count	125.0	71.0	53.0	33.0	45.0	327.0

From the table 22, the highest number of nurse room visits for 77 visits for students aged 13 years old, and the lowest (15 visits) was for students aged 18 years old.

Table 23

Symmetric Measures of Age and Number of Nurse Room Visits

		Value	Approx. Sig.
Nominal by Nominal	*Phi*	.350	.005
N of Valid Cases		327	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

From the table 23, there was a significant variation in number of nurse room visits is accounted for by the variation in the measures of age ($p<0.05$).

Table 24

Crosstab between School Grade and Number of Nurse Room Visits

			Number of nurse room visits					Total
			1 visit	2 visits	3 visits	4 visits	5 visits or more	
School grade	M.1	Count	29	7	7	2	2	47
		Expected Count	18.0	10.2	7.6	4.7	6.5	47.0
	M.2	Count	18	10	5	5	5	43
		Expected Count	16.4	9.3	7.0	4.3	5.9	43.0
	M.3	Count	27	14	8	4	8	61
		Expected Count	23.3	13.2	9.9	6.2	8.4	61.0
	M.4	Count	13	10	14	10	15	62
		Expected Count	23.7	13.5	10.0	6.3	8.5	62.0
	M.5	Count	19	17	10	7	8	61
		Expected Count	23.3	13.2	9.9	6.2	8.4	61.0
	M.6	Count	19	13	9	5	7	53
		Expected Count	20.3	11.5	8.6	5.3	7.3	53.0

Total	Count	125	71	53	33	45	327
	Expected Count	125.0	71.0	53.0	33.0	45.0	327.0

From the table 24, the highest number of nurse room visits for M.4 students was 62 visits for the lowest was 47 visits for M.1 students.

Table 25

Symmetric Measures of School Grade and Number of Nurse Room Visits

		Value	Approx. Sig.
Nominal by Nominal	*Phi*	.313	.043
N of Valid Cases		327	

a Not assuming the null hypothesis.

B Using the asymptotic standard error assuming the null hypothesis.

From the table 25, there was found to be a significant variation in the number of nurse room visits is accounted for by the variation in the measures of School grade (p<043).

Table 26

Crosstab between GPA and Number of Nurse Room Visits

			Number of nurse room visits					Total
			1 visit	2 visits	3 visits	4 visits	5 visits or more	
GPA	Below 2.74	Count	9	3	7	6	15	40
		Expected Count	15.1	8.7	6.5	4.1	5.5	40.0
	Between 2.75 and 3.49	Count	31	18	17	12	13	91
		Expected Count	34.4	19.9	14.8	9.2	12.6	91.0

	Between 3.50 and 4.00	Count	83	50	29	15	17	194
		Expected Count	73.4	42.4	31.6	19.7	26.9	194.0
Total		Count	123	71	53	33	45	325
		Expected Count	123.0	71.0	53.0	33.0	45.0	325.0

From the table 26, the highest number of nurse room visits for GPA between 3.50 – 4.00 was 194 visits and the lowest was 40 visits and 91 visits for GPA below 2.74 and GPA between 2.74 – 3.49 respectively.

Table 27

Symmetric Measures of GPA and Number of Nurse Room Visits

		Value	Approx. Sig.
Nominal by Nominal	*Phi*	.317	.000
N of Valid Cases		325	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

From the table 27, there was found to be a significant variation in the number of nurse room visits is accounted for by the variation in the measures of GPA (p=.000).

Table 28

Crosstab between Level of School Grade and Number of Nurse Room Visits

			Number of nurse room visits					Total
			1 visit	2 visits	3 visits	4 visits	5 visits or more	
Level of school grade	Middle school student	Count	72	30	15	11	14	142
		Expected Count	54.3	30.8	23.0	14.3	19.5	142.0

	High school student	Count	53	41	38	22	31	185
		Expected Count	70.7	40.2	30.0	18.7	25.5	185.0
Total		Count	125	71	53	33	45	327
		Expected Count	125.0	71.0	53.0	33.0	45.0	327.0

From the table 28, the highest number of nurse room visits for Level of school grade was185 visits for High school students, and the lowest was142 visits for Middle school students.

Table 29

Symmetric measures of Level of school grade and Number of Nurse Room Visits

		Value	Approx. Sig.
Nominal by Nominal	*Phi*	.243	.001
N of Valid Cases		327	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

From the table 29, there was found to be a significant variation in the number of nurse room visits is accounted for by the variation in the measures of Level of school grade (p<.001).

Table 30

Crosstab between Academic programs and Number of Nurse Room Visits

			Number of nurse room visits					Total
			1 visit	2 visits	3 visits	4 visits	5 visits or more	
Academic programs	Middle school program	Count	72	30	15	11	14	142
		Expected Count	54.3	30.8	23.0	14.3	19.5	142.0

	Mathematics –Science Program	Count	32	20	15	11	7	85
		Expected Count	32.5	18.5	13.8	8.6	11.7	85.0
	Mathematics-Languages Program	Count	9	7	7	5	4	32
		Expected Count	12.2	6.9	5.2	3.2	4.4	32.0
	Languages Program	Count	12	14	16	6	20	68
		Expected Count	26.0	14.8	11.0	6.9	9.4	68.0
Total		Count	125	71	53	33	45	327
		Expected Count	125.0	71.0	53.0	33.0	45.0	327.0

From the table 30, the highest number of nurse room visits for Academic programs was 142 visits of Middle school program (Middle school students) and the lowest was 85, 68 and 32 visits for Mathematics–Science Program, Languages Program and Mathematics–Languages Program (High school students) respectively.

Table 31

Symmetric measures of Academic programs and Number of Nurse Room Visits

		Value	Approx. Sig.
Nominal by Nominal	*Phi*	.342	.000
N of Valid Cases		327	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

From the table 31, there was found to be a significant variation in the number of nurse room visits is accounted for by the variation in the measures of Academic program (p=.000).

Table 32

Crosstab between Number of siblings and Number of Nurse Room Visits

			Number of nurse room visits					Total
			1 visit	2 visits	3 visits	4 visits	5 visits or more	
Number of siblings	Only 1 child	Count	23	12	7	5	7	54
		Expected Count	20.6	11.7	8.8	5.4	7.4	54.0
	2 siblings (respondent included)	Count	61	38	27	13	21	160
		Expected Count	61.2	34.7	25.9	16.1	22.0	160.0
	3 siblings (respondent included)	Count	25	16	15	13	13	82
		Expected Count	31.3	17.8	13.3	8.3	11.3	82.0
	4 siblings (respondent included)	Count	14	5	3	2	3	27
		Expected Count	10.3	5.9	4.4	2.7	3.7	27.0
	5 siblings or more (respondent included)	Count	2	0	1	0	1	4
		Expected Count	1.5	.9	.6	.4	.6	4.0
Total		Count	125	71	53	33	45	327
		Expected Count	125.0	71.0	53.0	33.0	45.0	327.0

From the table 32, the highest number of nurse room visits was 160 visits for 2 siblings (respondent included) and the lowest was 82, 54, 27 and 4 visits for 3 siblings (respondent included), only 1 child, 4 siblings (respondent included) and 5 siblings or more (respondent included) respectively.

Table 33

Symmetric measures of Number of siblings and Number of Nurse Room Visits

		Value	Approx. Sig.
Nominal by Nominal	*Phi*	.179	.838
N of Valid Cases		327	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

From the table 33, there was no shared variation in the number of nurse room visits due to number of siblings.

Table 34

Crosstab between of Parental status and Number of Nurse Room Visits

			Number of nurse room visits					Total
			1 visit	2 visits	3 visits	4 visits	5 visits or more	
Parental status	Married	Count	118	61	49	28	38	294
		Expected Count	112.0	63.7	48.2	30.0	40.0	294.0
	Divorced	Count	5	9	4	5	6	29
		Expected Count	11.0	6.3	4.8	3.0	4.0	29.0
Total		Count	123	70	53	33	44	323
		Expected Count	123.0	70.0	53.0	33.0	44.0	323.0

From the table 34, the highest number of nurse room visits for Married status was 294 visits, and the lowest was 29 visits for Divorced status.

Table 35

Crosstab between of Parental status and Number of Nurse Room Visits

		Value	Approx. Sig.
Nominal by Nominal	*Phi*	.155	.101
N of Valid Cases		323	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

From the table 35, there was no associated significant variation in the number of nurse room visits due to Parental status.

Table 36

Crosstab between of Student living arrangement and Number of Nurse Room Visits

			Number of nurse room visits					Total
			1 visit	2 visits	3 visits	4 visits	5 visits and more	
Student Living arrangement	Live with parent	Count	115	57	45	24	34	275
		Expected Count	104.9	60.1	44.8	27.1	38.1	275.0
	Live with single parent	Count	2	9	3	5	4	23
		Expected Count	8.8	5.0	3.8	2.3	3.2	23.0
	Live with relatives	Count	4	1	4	2	5	16
		Expected Count	6.1	3.5	2.6	1.6	2.2	16.0
	Live in a dorm	Count	3	4	1	1	2	11
		Expected Count	4.2	2.4	1.8	1.1	1.5	11.0
Total		Count	124	71	53	32	45	325
		Expected Count	124.0	71.0	53.0	32.0	45.0	325.0

From the table 36, the highest number of nurse room visits for 275 visits for students who lived with parent and the lowest was11 visits for students who lived in a dorm.

Table 37

Crosstab between of Student living arrangement and Number of Nurse Room Visits

		Value	Approx. Sig.
Nominal by Nominal	*Phi*	.264	.030
N of Valid Cases		325	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

From the table 37, there was found to be a significant variation in the number of nurse room visits is accounted for by the variation in the measures of Student living arrangement (p<.030).

CHAPTER 5

DISCUSSION

Limitations of the Study

Limitations of the study were administration time and the appropriation of the questionnaire for the respondents. In accordance with an advisory from the school nurse, the researcher found that administering all 90 items of original SCL-90 was not suitable for the students to finish within the time frame of a nurse room visit. As a result, the SCL-90 was shortened to 45 items, in order to be able to administer it during a school nurse room visit. Therefore, we are missing data from the three subscales that were deleted (Obsessive-Compulsive, Phobic Anxiety, and Psychoticism). Furthermore, the accuracy in the respondents' self-rating is also suspect – there may be an element of carelessness (just get it done quickly) and/or social desirability because the results of the questionnaires were found to be lower than average scores. It is possible that the respondents answered the questionnaires without considerable self-examination, especially as the questionnaires were distributed by school nurses to the students in the nurse room during their visit for an illness (hence, careless responding).

Nevertheless, The demographic questionnaires were returned 100 percent. Therefore, all 9 demographic variables were used in the analysis (Age, School grade, GPA, School level, Academic programs, Number of siblings, Parental status, Student living arrangement, and Number of nurse room visits).

Summary of the Findings

1. From Table 2, the mean modified SCL-90 subscale scores tended to be in the low range (normal to low).

2. From Table 3, there was a significant difference between 1 nurse room visit and 5 or more nurse room visits in Somatization (p=.001) and Anxiety (p=.034) scores, with these subscale scores being higher with more visits.
3. From Table 6-8, there was no difference in modified SCL-90 scores for Age, School grade, GPA, and Number of siblings.
4. From Table 9, there was a significant difference between Level of school grade and Hostility (p=.025), where the mean value of high school students was higher than for middle school level.
5. From Table 13, there was a significant difference between Academic programs in Depression (p=.038) and Paranoid ideation (p=.048) scores, where Mathematics-Science Program had higher scores than Languages.
6. From Table 18, there was a significant difference between Student living arrangement and modified SCL-90 scores in Paranoid ideation (p=.034), where student living with relatives had a higher PAR score than those living with parents.
7. From Table 22, there was a relationship between Age and Number of nurse room visits, where students aged 13 years old were found to have the highest number of visits, and lowest visits were for the students aged 18 years old.
8. From Table 28, there was a relationship between level of school grade and Number of nurse room visits, where the high school students were found to have a higher number of nurse visits than the middle school students.
10. From Table 36, there was a relationship between Student living arrangement and Number of nurse room visits, where the students who lived with both parents were found to have the highest number of visits, whereas students who lived in a dorm were found to have the lowest number of visits.

Discussion of the Results

The first finding was in terms of the demographic variables of the participants. The majority of students were aged between 13-15 years old (63.9%), and 44.4% studied at the middle school level (M.1-M.3). The high school students were in the different academic programs, as follows: Mathematics-Science Program, 26.7%, and in the Languages Program, 19.2%. The majority of students received a GPA between 3.50 and 4.00 (60.8%). There were 83.3% of the students who lived with their parents, whereas 4.7% live with relatives 4.7%. The finding with regard to number of nurse room visits was found to be 34.7% for 1 visit, 19.7% for 2 visits, 14.7% for 3 visits, and 5 or more visits and 4 visits were12.5% and 9.2% respectively.

The second finding was descriptive data for the mean of the subscales scores on the modified SCL-90. It was found that the mean scores indicated normal to low scores. The average overall mean score was 37.97 percent, which implies good psychological health.

The third finding was of a significant difference in Somatization (p=.001), and Anxiety (p=.034) subscale scores against number of nurse room visits (1 versus 5 or more visits). Rethink (2000) stated that anxiety can become a psychological symptom interfering with a person's life, their associates, academic potential, or even their relationships within the family. Similarly, Schaufeli and Enzmann (1998) found a link between Somatization and Anxiety. Their study found that people who experience physical distress such as headaches, nausea, dizziness, muscle pains, and particularly neck and lower back pain may also experience anxiety and can be afraid of losing control over the body. Further, a survey finding from the ABAC Poll at Assumption

University, Bangkok, found that young people are becoming increasing stressed by a range of behavioral and lifestyle problems including alcohol abuse, violent arguments and uncontrollable spending. When linked to stressors, the poll found that 39.3 percent of these young people were concerned about their studies, 26.9 percent were concerned about their future, 6.7 percent were concerned about family problems. Interestingly, 45.6 percent admitted to being occasionally so angry with someone that they were unable to control their own emotions, while 32.7 percent said that they were sometimes so desperate to get something that they would do almost anything in order to get it. Worryingly, 8.5 percent said that they had considered suicide due to ennui, loss of hope, confusion, family problems and relationship problems.

The fourth finding was found that there is no difference in modified SCL-90 scores for Age, School grade, GPA, and Number of siblings in terms of psychological well being. This finding supports the second finding which suggests general psychological health in this population. In terms of GPA, the results of this study did not support the study by Henri, Katri and Kati (2006) who found that a lower GPA predicted depressive symptoms in 12-17 year old girls.

The fifth finding was a significant difference between Level of school grade and Hostility scores (p=.025). A related study from Rollin, Dana, Mike, Pam, and Stephanie (2000) showed that high school seniors who received a 3-week training in Heart-Math learning enhancement skills demonstrated substantial improvements in test scores and passing rates on state-required Math and Reading tests. Students also experienced significant reductions in hostility, depression and other key indicators of psychological distress after learning Heart-Math tools. These included reductions in

hostility, depression, interpersonal sensitivity, paranoid ideation, and somatization. Furthermore, a study from Schafer (1996) stated that the hostility, as cynicism towards another's motives and values, easily aroused anger. This hostility causes health problems such as somatic symptoms, anxiety/insomnia, social dysfunction, and depression.

The sixth finding was a significant difference between Academic programs (Mathematics Program) and Depression (p=.038) and Paranoid ideation (p=.048) scores. A study from MacGeorge, Samter and Gillihan (2006) found that academic stress is associated with a variety of negative health outcomes including depression, anxiety, and physical illness. Also, their results indicated that the association between academic stress and depression decreased as instrumental support increased. Results from a related study from Steptoe, Wardle, Pollard, Canaan, and Davies (1995) that examined the relationship between academic examination stress and health behavior in university students in London indicated that emotional distress and stress were higher in the exam-stress group than the control group. Time spent in physical activity was also significantly less in the exam-stress group.

The seventh finding was a significant difference between Student living arrangement and Paranoid ideation scores (p=.034). A study supported from Solomon and Mesganaw and Abeba (2006) revealed that the students living with both biological parents were generally found to fare better than their counterparts living with one biological parent only, friends or alone. Additionally, a study from Amato and Keith (1991) found that family disruptions often entail a number of changes which, taken together, can be more stressful than any one considered alone (i.e. moving, changing

schools, loss of contact with the non custodial parent, and a decline in one's standard of living).

The eighth finding was a relationship between Age and Number of nurse room visits. It was found that the younger students tended to visit the nurse room more than the older students. Students aged 13 years old visited the nurse room significantly more times than students aged 18 years old. This was supported by Atha and Staats' (1990), who explained their findings by saying that emotionality decreases with age, and since they believe everyday hassles create more stress than major crises, the greater experience that comes with age increases a person's ability to evaluate the everyday hassles more realistically. This does not support the study from the National Institutes of health (1999) that found more adolescents to have depression than children.

The ninth finding was a relationship between Level of school grade and Number of nurse room visits: it was found that high school students had a higher number of nurse room visits than middle school students.

The last finding was a relationship between Student living arrangement and Number of nurse room visits. It was found that the students who lived with their parents had the highest number of nurse room visits, whereas the students who lived in a dorm were the lowest number of nurse room visits.

Discussion

The students at Satriwithaya School had low overall and subscale scores on the modified SCL-90, which implies good overall psychological health.

However, there was a significant relationship between Anxiety (ANX) and Somatization (SOM) scores with Number of nurse room visits. This suggests that students who visit the school nurse room on a regular basis may be experiencing more anxiety or somatic symptoms. Another possible link is that as the participants are female students in the period of puberty (especially younger students), it is possible to consider this a (stressful) transition period. In addition to this, the announcement by NIETS (National Institute of Education Testing Service) that Satriwithaya School was one of 50 top academic schools in Thailand may be another stressor. It is possible to conclude that school academic competitiveness and developmental pressures may increase Anxiety and Somatization scores.

In terms of the significant difference between Academic programs in Depression (.038) and Paranoid ideation (.048) scores, where Mathematics-Science had higher scores than Language, the researcher can propose that there are difficulties and competitive toughness in the study of Mathematics and Science programs that lead to certain psychological symptoms (Depression and Paranoid ideation) in these students. On the other hand, English literature is more likely to be more focused on artistic pursuits that emphasize communication skills such as speaking, wiring, interpretation, and creativity, compared to the knowledge profile of Mathematics and Science (more likely to be focused on numerical data, measurement, laboratory and analysis). Therefore, the study of Mathematics-Science may probably be a stressor that precipitates depressive and paranoid symptomatology. There are many long-term studies that support sex-differences in intrinsic aptitude for Math and Science in SAT-M tests (Benbow & Stanley, 1983; Deary, Thorpe, Wilson, Starr, &Whalley, 2003;

Feingold, 1994; Hedges & Nowell, 1995; Hyde, Fennema, & Lamon, 1990), where high school boys received higher scores in mathematics performance than high school girls. So, it may be concluded that sex differences in intrinsic aptitude for Mathematics and science can cause more psychological symptoms to girl students studying in this field. In addition, parental expectations can be another cause of Depression and Paranoid ideation – hence, maybe expectations to succeed in mathematics and science.

There was a significant difference between Student living arrangement and modified SCL-90 scores in Paranoid ideation (.034), where students living with relatives had a higher Paranoid ideation score than those living with parents. The higher score in Paranoid ideation of students who live with relatives may reflect concerns about the quality of the relationship between the students and non-parent caretakers.

Conclusions and Recommendations

1. The researcher recommended that school nurses be aware of possible psychological symptoms that may underlie the physical symptoms of students who visit the nurse room, especially anxious and somatic symptoms that arise from stress. A brief psychological assessment may be helpful.
2. This study was limited to female students from a top school. Further studies could be done with other schools, male students, and/or additional demographic variables.
3. Preparing a program of stress relieving exercises in the nurse room may help to release any stress and hostility for students who go to the nurse room more than

once, especially those in the Mathematics-Science program and students who do not live with their parents.

4. It would be great if the school can provide the SCL-90 to all students who visit the nurse room for access to their psychological functioning, to build a larger, normative data base for middle school and high school students.

5. After the researcher concluded the data gathering and analysis, it was discovered that there is a short form of the SCL-90 called the BSI (Brief Symptom Inventory). When compared to the BSI, the modified SCL-90 used in the study included 23 items from the BSI. These 23 items from the BSI were comprised of 4 items of Somatization, 3 items of Interpersonal Sensitivity, 5 items of Depression, 4 items of Anxiety, 4 items of Hostility, and 3 items of Paranoid Ideation. This study could be replicated using the BSI as its instrument and comparing the BSI result to the modified SCL-90.

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APPENDIX A

Part I: Demographic questionnaire

Read each one carefully and check the circle to describe your personal data

1. Age
   - ◯ 13 years old
   - ◯ 14 years old
   - ◯ 15 years old
   - ◯ 16 years old
   - ◯ 17 years old

2. School grade
   - ◯ M.1 (7^{th} grade)
   - ◯ M.2 (8^{th} grade)
   - ◯ M.3 (9^{th} grade)
   - ◯ M.4 (10^{th} grade)
   - ◯ M.5 (11^{th} grade)
   - ◯ M.6 (12^{th} grade)

3. GPA
   - ◯ GPA below 2.74
   - ◯ GPA between 2.75 to 3.49
   - ◯ GPA between 3.50 to 4.00

4. Academic program
   - ◯ Middle school program
   - ◯ Mathematics–Science Program
   - ◯ Mathematics–Language Program
   - ◯ Language Program

5. Number of nurse room visits

- ◯ 1 visit
- ◯ 2 visits
- ◯ 3 visits
- ◯ 4 visits
- ◯ 5 visits or more

6. Number of siblings

- ◯ Only 1 child
- ◯ 2 siblings (respondent included)
- ◯ 3 siblings (respondent included)
- ◯ 4 siblings (respondent included)
- ◯ 5 siblings or more (respondent included)

7. Parental status

- ◯ Single parent
- ◯ Divorced

8. Student living arrangement

- ◯ Live with parents
- ◯ Live with single parent
- ◯ Live with relatives
- ◯ Live in a dorm

APPENDIX B

Part II: SCL-90 (Symptoms Check List -90)

Read each one carefully and select one of the numbered descriptors that best describe how much discomfort that problem has caused to you during the past 7 days INCLUDING TODAY. Place that number in the open block to the right of the problem. Do not skip any items, and circle your number clearly.

Please answer all 45 questions within 10 minutes.

no.	item	not at all	a little bit	mod erate ly	quite a bit	extre mely
1	Headaches	0	1	2	3	4
2	Pains in lower back	0	1	2	3	4
3	Heavy feeling in your arms or legs	0	1	2	3	4
4	Feeling that people are unfriendly or dislike you	0	1	2	3	4
5	Worrying too much about things	0	1	2	3	4
6	Feeling hopeless about the future	0	1	2	3	4
7	Feeling fearful	0	1	2	3	4
8	Heart pounding or racing	0	1	2	3	4
9	Feeling so restless you couldn't sit still	0	1	2	3	4
10	The feeling that something bad is going to happen to you	0	1	2	3	4
11	Temper outbursts that you could not control	0	1	2	3	4
12	Having urges to break or smash things	0	1	2	3	4
13	Pains in heart or chest	0	1	2	3	4

no.	item	not at all	a little bit	mod erate ly	quite a bit	extre mely
14	Numbness or tingling in part of the body	0	1	2	3	4
15	Lump in your throat	0	1	2	3	4
16	Feeling inferior to others	0	1	2	3	4
17	Feeling lonely	0	1	2	3	4
18	Nervousness or shaking inside	0	1	2	3	4
19	Trembling	0	1	2	3	4
20	Spells of terror or panic	0	1	2	3	4
21	Feeling easily annoyed or irritated	0	1	2	3	4
22	Soreness of muscles	0	1	2	3	4
23	Thoughts of ending your life	0	1	2	3	4
24	Feelings of being trapped or caught	0	1	2	3	4
25	Blaming yourself for things	0	1	2	3	4
26	Feeling no interest in things	0	1	2	3	4
27	Feeling that most people cannot be trusted	0	1	2	3	4
28	Feeling that people will take advantage of you if you let them	0	1	2	3	4
29	Nausea or upset stomach	0	1	2	3	4
30	Worried about sloppiness or carelessness	0	1	2	3	4
31	Feeling others do not understand you or are unsympathetic	0	1	2	3	4

no.	item	not at all	a little bit	mod erate ly	quite a bit	extre mely
32	Feeling uneasy when people are watching or talking about you	0	1	2	3	4
33	Feeling very self-conscious with others	0	1	2	3	4
34	Feeling uncomfortable about eating or drinking in public	0	1	2	3	4
35	Loss of sexual interest or pleasure	0	1	2	3	4
36	Thoughts or images of a frightening nature	0	1	2	3	4
37	Having ideas or beliefs that others do not share	0	1	2	3	4
38	Faintness or dizziness	0	1	2	3	4
39	Feeling critical of others	0	1	2	3	4
40	Feeling low in energy or slowed down	0	1	2	3	4
41	Feeling blue	0	1	2	3	4
42	Having urges to beat, injure or harm someone	0	1	2	3	4
43	Others not giving you proper credit for your achievements	0	1	2	3	4
44	The idea that you should be punished for your sins	0	1	2	3	4
45	Thoughts of death or dying	0	1	2	3	4

APPENDIX C

แบบสอบถาม

เรื่องความสัมพันธ์ของอาการเจ็บป่วยทางร่างกายและสุขภาพจิต กับจำนวนครั้งที่เข้ามาใช้บริการห้องพยาบาลของนักเรียนโรงเรียนสตรีวิทยา

คำชี้แจง 1) แบบสอบถามมี 2 ตอน ประกอบด้วย

ตอนที่ 1 สถานภาพผู้ตอบแบบสอบถาม

ตอนที่ 2 อาการเจ็บป่วยทางร่างกายและสุขภาพจิตที่เกิดขึ้นกับนักเรียน

2) ขอให้นักเรียนทำเครื่องหมาย ◯ ล้อมรอบระดับอาการเจ็บป่วยทางร่างกาย และสุขภาพจิตที่เกิดขึ้นกับนักเรียนตามความเป็นจริงหรือใกล้เคียงที่สุด โดยมีตัวเลขของระดับอาการตามความหมายดังนี้

0 หมายถึง ไม่เคยเกิดขึ้นเลย

1 หมายถึง เกิดขึ้นเล็กน้อย

2 หมายถึง เกิดขึ้นปานกลาง

3 หมายถึง เกิดขึ้นค่อนข้างมาก

4 หมายถึง เกิดขึ้นมากที่สุด

<u>ตอนที่ 1</u> สถานภาพทั่วไปของนักเรียน

คำชี้แจง โปรดทำเครื่องหมาย / ลงใน ◯ หน้าตัวเลือกตามความเป็นจริง โดยแต่ละข้อให้เลือกได้เพียงตัวเลือกเดียว

1. อายุ

◯ 13 ปี ◯ 14 ปี ◯ 15 ปี ◯ 16 ปี ◯ 17 ปี ◯ 18 ปี

2. กำลังศึกษาอยู่ระดับชั้น

◯ ม.1 ◯ ม.2 ◯ ม.3 ◯ ม.4 ◯ ม.5 ◯ ม.6

3. ระดับคะแนนเฉลี่ยสะสม (GPA)ของภาคเรียนที่ผ่านมาล่าสุด

◯ ต่ำกว่า 2.74 ◯ ตั้งแต่ 2.75 – 3.49 ◯ ตั้งแต่ 3.50 – 4.00

4. แผนการเรียน

นักเรียนระดับมัธยมต้น ◯ ยังไม่ถึงเกณฑ์ที่ต้องเลือก

นักเรียนระดับมัธยมปลาย ◯ คณิต-วิทย์

◯ ศิลป์-คำนวณ

◯ ศิลป์-ภาษา (จีน, ญี่ปุ่น, ฝรั่งเศส, เยอรมัน)

5. จำนวนครั้งที่เข้ามาใช้บริการห้องพยาบาลด้วยอาการเจ็บป่วยทางร่างกายและหรือสุขภาพจิต

นับตั้งแต่ภาคเรียนที่ 1 ปีการศึกษา 2550

◯ 1 ครั้ง ◯ 2 ครั้ง ◯ 3 ครั้ง ◯ 4 ครั้ง ◯ 5 ครั้งและมากกว่า

6. จำนวนพี่น้องในครอบครัว

◯ เป็นลูกคนเดียวไม่มีพี่น้อง

◯ มีพี่น้อง 2 คน (รวมผู้ตอบ)

◯ มีพี่น้อง 3 คน (รวมผู้ตอบ)

◯ มีพี่น้อง 4 คน (รวมผู้ตอบ)

◯ มีพี่น้อง 5 คนขึ้นไป (รวมผู้ตอบ)

7. สถานะของบิดาและมารดา

◯ บิดาและมารดาอยู่ด้วยกัน

◯ บิดาและมารดาหย่าร้างหรือแยกทางกัน

8. นักเรียนอาศัยอยู่กับ

◯ อยู่กับบิดาและมารดาที่อยู่ด้วยกัน

◯ อยู่กับบิดาและมารดาที่แยกทางกัน

◯ อยู่กับญาติ ได้แก่ ปู่ย่า ตายาย ลุงป้า น้าอา

◯ อยู่กับผู้อื่นที่ไม่ใช่ญาติ

◯ อยู่หอพัก

APPENDIX D

ตอนที่ 2 อาการเจ็บป่วยทางร่างกายและสุขภาพจิตที่เกิดขึ้นกับนักเรียน

คำชี้แจง ให้นักเรียนสำรวจดูว่าภายในระยะ 1 หรือ 2 อาทิตย์ที่ผ่านมาว่า นักเรียนมีอาการต่าง ๆ เกิดขึ้นในระดับใด โดยทำเครื่องหมาย ◯ ล้อมรอบระดับที่ตรงหรือใกล้เคียงกับความเป็นจริงมากที่สุด คำถามมีจำนวน 45 ข้อ ใช้เวลา 10 นาที

ข้อ	อาการเจ็บป่วยทางร่างกายและสุขภาพจิตที่เกิดขึ้น	ระดับอาการไม่เคยเลย	ระดับอาการเล็กน้อย	ระดับอาการปานกลาง	ระดับอาการค่อนข้างมาก	ระดับอาการมากที่สุด
1	ปวดศีรษะ ปวดขมับ	0	1	2	3	4
2	ปวดบั้นเอว	0	1	2	3	4
3	รู้สึกแขนขาหนักแบบยกไม่ขึ้น	0	1	2	3	4
4	รู้สึกว่าคนอื่น ๆ ไม่เป็นมิตรหรือไม่ชอบตน	0	1	2	3	4
5	วิตกกังวลในสิ่งต่าง ๆ มากเกินไป	0	1	2	3	4
6	รู้สึกสิ้นหวังเกี่ยวกับอนาคต	0	1	2	3	4
7	รู้สึกกลัวได้ง่าย	0	1	2	3	4
8	หัวใจเต้นแรงและเร็ว หรือมีอาการตื่นเต้น	0	1	2	3	4
9	รู้สึกนั่งไม่ติดอยู่กับที่ อยู่ไม่นิ่ง	0	1	2	3	4
10	รู้สึกว่าสิ่งที่คุ้นเคยมาก่อนดูแปลกไป	0	1	2	3	4
11	มีอารมณ์พลุ่งพล่านที่ระงับไม่ได้	0	1	2	3	4
12	อยากทำลายสิ่งของ	0	1	2	3	4
13	ปวดหัวใจ หรือเจ็บที่หน้าอก	0	1	2	3	4
14	รู้สึกชาหรือซู่ซ่าตามตัว	0	1	2	3	4
15	รู้สึกจุกเหมือนมีก้อนติดอยู่ในลำคอ	0	1	2	3	4
16	รู้สึกด้อยกว่าผู้อื่น	0	1	2	3	4
17	รู้สึกเหงา	0	1	2	3	4
18	ประสาทอ่อนหรือประหม่าได้ง่าย	0	1	2	3	4
19	มีอาการตัวสั่น	0	1	2	3	4
20	รู้สึกตกใจ หวาดกลัว	0	1	2	3	4
21	รู้สึกโกรธ หงุดหงิดง่าย	0	1	2	3	4

ข้อ	อาการเจ็บป่วยทางร่างกายและสุขภาพจิตที่เกิดขึ้น	ระดับอาการไม่เคยเลย	ระดับอาการเล็กน้อย	ระดับอาการปานกลาง	ระดับอาการค่อนข้างมาก	ระดับอาการมากที่สุด
22	ปวดเมื่อยกล้ามเนื้อ	0	1	2	3	4
23	ไม่อยากมีชีวิตอยู่	0	1	2	3	4
24	รู้สึกว่าถูกกักขังหรือถูกควบคุม	0	1	2	3	4
25	ตำหนิตนเองในเรื่องต่าง ๆ	0	1	2	3	4
26	รู้สึกไม่สนใจในสิ่งต่าง ๆ	0	1	2	3	4
27	รู้สึกไม่ไว้วางใจผู้อื่น	0	1	2	3	4
28	รู้สึกว่าคนอื่นจะเอาเปรียบถ้าท่านยอม	0	1	2	3	4
29	คลื่นไส้ หรือท้องไส้ปั่นป่วน	0	1	2	3	4
30	กังวลเกี่ยวกับความสะเพร่าของตนเอง	0	1	2	3	4
31	รู้สึกว่าคนอื่น ๆ ไม่เข้าใจหรือเห็นอกเห็นใจตน	0	1	2	3	4
32	รู้สึกไม่สบายใจเมื่อคนมาจ้องมองหรือมีคนมาพูดถึงตัวท่าน	0	1	2	3	4
33	รู้สึกว่าผู้อื่นมุ่งความสนใจมาที่ตัวท่าน	0	1	2	3	4
34	รู้สึกอึดอัดเมื่อต้องกินหรือดื่มในที่สาธารณะ	0	1	2	3	4
35	ไม่สนใจเรื่องเพศตรงข้าม	0	1	2	3	4
36	รู้สึกมีอะไรมาผลักดันให้ทำสิ่งต่าง ๆ	0	1	2	3	4
37	รู้สึกว่าคนอื่นไม่เห็นด้วยและไม่ร่วมมือกับท่าน	0	1	2	3	4
38	หน้ามืด วิงเวียน จะเป็นลม	0	1	2	3	4
39	มีความรู้สึกอยากวิพากษ์วิจารณ์คนอื่น	0	1	2	3	4
40	รู้สึกไม่มีเรี่ยวแรงหรือเชื่องช้า	0	1	2	3	4
41	รู้สึกเศร้าหดหู่	0	1	2	3	4
42	มีความคิดอยากทำร้ายคนอื่น	0	1	2	3	4
43	รู้สึกว่าผู้อื่นไม่ยอมรับในความสามารถของท่าน	0	1	2	3	4
44	คิดว่าตนกำลังถูกลงโทษจากความผิดที่ทำไว้	0	1	2	3	4

ข้อ	อาการเจ็บป่วยทางร่างกายและสุขภาพจิตที่เกิดขึ้น	ระดับอาการไม่เคยเลย	ระดับอาการเล็กน้อย	ระดับอาการปานกลาง	ระดับอาการค่อนข้างมาก	ระดับอาการมากที่สุด
45	มีความคิดวนเวียนแต่กับเรื่องการพลัดพรากหรือการตายจากกัน	0	1	2	3	4

APPENDIX E

Table 1. Sample size for ±3%, ±5%, ±7% and ±10% Precision Levels Where Confidence Level is 95% and P=.5.

Size of	Sample Size (n) for Precision (e) of:			
Population	±3%	±5%	±7%	±10%
500	a	222	145	83
600	a	240	152	86
700	a	255	158	88
800	a	267	163	89
900	a	277	166	90
1,000	a	286	169	91
2,000	714	333	185	95
3,000	811	353	191	97
4,000	870	364	194	98
5,000	909	370	196	98
6,000	938	375	197	98
7,000	959	378	198	99
8,000	976	381	199	99
9,000	989	383	200	99
10,000	1,000	385	200	99
15,000	1,034	390	201	99
20,000	1,053	392	204	100
25,000	1,064	394	204	100
50,000	1,087	397	204	100
100,000	1,099	398	204	100
>100,000	1,111	400	204	100

a = Assumption of normal population is poor (Yamane, 1967). The entire population should be sampled.