

**PREVALENCE OF STRESS AND ITS ASSOCIATED
FACTORS AMONG SECONDARY BOARDING
SCHOOL STUDENTS IN KELANTAN**

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TABLE OF CONTENTS

ACKNOWLEDGEMENT.....	i
LIST OF TABLES.....	vi
LIST OF FIGURES.....	vii
LIST OF APPENDICES.....	viii
ABBREVIATIONS.....	ix
ABSTRAK.....	x
ABSTRACT.....	xii
CHAPTER ONE: INTRODUCTION	
1.1 Introduction.....	1
1.2 Rationale of the study	4
CHAPTER TWO: LITERATURE REVIEW	
2.1. Burden of Stress.....	6
2.2 Adolescent in boarding schools.	8
2.3 Assestment of stress.....	9
2. 4 Factor Associated With Stress	9
2.5 Conceptual Framework.....	16
CHAPTER THREE: OBJECTIVE, RESEARCH QUESTIONS AND HYPOTHESES	
3.1 General Objectives.....	17
3.2 Specific Objectives	17
3.3 Research Questions.....	17

3.4 Hypothesis	17
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CHAPTER FOUR: METHODOLOGY

4.1 Study Design.....	18
4.2 Study Duration	18
4.3 Study Area	18
4.4 Reference Population.....	18
4.5 Source Population.....	18
4.6 Study Population.....	18
4.7 Sample Size Calculation	19
4.8 Sampling Method.....	21
4.9 Research Tool	23
4.10 Data Collection	26
4.11 Statistical Analysis.....	27
4.12 Operational Definition	28
4.13 Ethical Consideration.....	29

CHAPTER FIVE: RESULTS

5.1 Demographic characteristic of students	31
5.2 Prevalence of stress.....	32
5.3 Factors associated with stress	
5.3.1 Associated factors of stress using simple logistic regression	35
5.3.2 Associated factors of stress using multiple logistic regression.....	37

5.3.3 Model Assessment.....	39
5.3.4 Final model	40
CHAPTER 6:DISCUSSION	
6.1 Prevalence of stress among secondary boarding school students in Kelantan	41
6.2 Associated factors of stress among secondary boarding school students in Kelantan	44
CHAPTER 7: CONCLUSION	56
CHAPTER 8: LIMITATION OF THE STUDY	57
CHAPTER 9: RECOMMENDATION.....	58
CHAPTER 10: REFERENCES	60

LIST OF TABLES

	Page
Table 1: Sample size calculation for objective 2.....	20
Table 2: Domain in Brief COPE.....	25
Table 3: Demographic characteristic of participants.....	31
Table 4: Descriptive statistics of independent variables.....	33
Table 5: Factors associated with stress analysed by Simple Logistic Regression	35
Table 6: Factors associated with stress analysed by Multiple Logistic Regression	37

LIST OF FIGURES

	Page
Figure 1: Conceptual framework.....	16
Figure 2: Study Flowchart.....	22
Figure 3: ROC curve.....	39

LIST OF APPENDICES

	Page
Appendix A: Human Research Ethics Committee USM approval.....	67
Appendix B: Ministry of Education approval.....	68
Appendix C: Jabatan Pendidikan Negeri approval.....	69
Appendix D: Yayasan Islam Kelantan approval.....	70
Appendix E: Parental information sheet and consent form.....	71
Appendix F: Student information sheet and consent form.....	76
Appendix G: Questionnaires.....	81

ABBREVIATIONS

CI	Confident interval
COPE	Coping Orientation of Problem Experienced
GHQ12	General Health Questionnaires 12
HIRS96	Hatta Islamic Religiosity Scale 96
MARA	Majlis Amanah Rakyat
OR	Odds ratio
RM	Ringgit Malaysia
ROC	Receiver operating characteristics
SD	Standard deviation
USM	Universiti Sains Malaysia
WHO	World Health Organization

ABSTRAK

Prevalens kejadian stress dan faktor-faktor berkaitan di kalangan pelajar sekolah menengah berasrama penuh di Kelantan

Pendahuluan Kejadian stress di kalangan remaja masa kini sangat berleluasa dan pelajar di sekolah berasrama penuh dikatakan mempunyai penyebab stress yang lebih kerana mereka berada di dalam situasi akademik yang lebih mencabar jika di bandingkan dengan pelajar sekolah biasa. Terdapat beberapa faktor yang mempengaruhi atau meningkatkan risiko untuk mendapat stress di kalangan remaja. Terdapat banyak kajian yang dijalankan di kalangan remaja berkenaan prevalens stress, penyebab stress dan mekanisme mengatasinya. Terdapat kekurangan di dalam kajian spesifik berkenaan faktor yang mempengaruhi stress di kalangan remaja terutamanya di Malaysia. Kajian ini bertujuan untuk mengetahui prevalens dan faktor yang mempengaruhi kejadian stress di kalangan pelajar sekolah menengah berasrama penuh di Kelantan.

Objektif Untuk menentukan prevalens stress di kalangan pelajar sekolah menengah berasrama penuh di Kelantan dan faktor-faktor yang mempengaruhi.

Kaedah Ini adalah kajian hirisan lintang yang melibatkan 519 pelajar dari sekolah menengah berasrama penuh kebangsaan dan sekolah menengah berasrama penuh agama. Peserta telah diminta untuk menjawab soalan kaji selidik berkenaan latar belakang, General Health Questionnaire digunakan untuk menilai tahap stress, Brief Cope Questionnaire untuk menilai cara menangani stress dan Hatta Islamic Religiosity Score 96 (HIRS96) untuk menilai tahap keagamaan. Data di analisis menggunakan analisis statistik simple dan multiple logistic regression.

Keputusan Prevalens stress di kalangan pelajar sekolah berasrama penuh di Kelantan adalah 21.8%. Jantina [OR (95% CI): 1.76 (1.05, 2.95)], pandangan terhadap keluarga [OR (95% CI): 1.74 (1.04, 2.90)] dan cara menangani seperti tangani secara aktif [OR (95% CI): 0.82 (0.69, 0.98)], pemisahan sikap [OR (95% CI): 1.30 (1.06, 1.58)] dan menyalahkan diri sendiri [OR (95% CI): 1.29 (1.11, 1.49)] adalah antara faktor yang didapati mempunyai kaitan dengan stress.

Kesimpulan Prevalens stress di kalangan pelajar sekolah berasrama penuh di Kelantan adalah bertepatan dengan jangkaan WHO dan isu kesihatan mental ini perlu di tangani secara serius oleh anggota kesihatan, guru-guru dan ibu bapa untuk mengatasi kejadian stress di kalangan remaja.

ABSTRACT

Prevalence of stress and its associated factors among secondary boarding school students in Kelantan.

Introduction Stress is a common problem in adolescence nowadays and students in boarding schools is said to have more stressors as they lived in academically challenged situation compared to students in normal school. There are several factors that associates or increase the tendency to develop stress among these adolescent. There are many studies conducted among adolescents regarding prevalence of stress, the stressors and coping mechanism of stress. There is paucity of specific study conducted to find out the associated factors of stress among adolescents especially in Malaysia. Thus, this study aimed to determine the prevalence and associated factors for stress among secondary boarding school students in Kelantan.

Objectives To determine the prevalence of stress and its associated factors among secondary boarding school students in Kelantan

Methodology This is a cross-sectional study involving 519 students from conventional and religious boarding schools in Kelantan. The students were required to answer a set of questionnaire on sociodemographic, General Health Questionnaire to assess the distress level, Brief COPE questionnaire for coping mechanism and Hatta Islamic Religiosity Score 96 (HIRS96) questionnaire for religiosity assessments. Data was analysed using simple and multiple logistic regression.

Results The prevalence of stress among secondary boarding school students in Kelantan was 21.8%. Sex [OR (95% CI): 1.76 (1.05, 2.95)], view towards

family [OR (95% CI): 1.74 (1.04, 2.90)] and coping mechanism of active coping [OR (95% CI): 0.82 (0.69, 0.98)], behavioural disengagement [OR (95% CI): 1.30 (1.06, 1.58)] and self blame [OR (95% CI): 1.29 (1.11, 1.49)] were found to be significantly associated with stress among the students.

Conclusion The prevalence of stress among secondary boarding school students in Kelantan was similar to what predicted by WHO and this mental health issue should be tackled seriously by the health professionals, educational provider and parents aiming to reduce and prevent the occurrence of stress among our adolescents.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

In the present-day, the words stress has many implication and definition based on various perspectives of human situation and condition. In Eastern philosophies, stress is considered to be an absence of inner peace whereas in Western culture, stress is described as loss of control (Seaward, 2004). In earlier days, stress is defined as a state of anxiety produced when there is event or responsibility which exceeds one's coping mechanism (Lazarus and DeLongis, 1983). Hans Selye, among the earliest scientist who studied stress added that stress is the nonspecific response of the body to any demand placed upon it to adapt, whether that demand produce pleasure or pain (Selye, 1976).

Adolescence is defined as the period in human growth and development that occurs after childhood and before adulthood, and it ranges from ages 10 to19 (Stengård and Appelqvist-Schmidlechner, 2010).It represents one of the critical transitions in the life span and is characterized by a remarkable pace in growth and change. Biologically, the onset of puberty marked the passage from childhood to adolescence. During this time, adolescents are in a phase of establishing independent identity, making educational and vocational decisions and lifestyle choices as well as forming interpersonal relationships (Stengård and Appelqvist-Schmidlechner, 2010).

Adolescence and stress are closely related. Adolescence period itself is a stress since new pubertal growth produces profound anatomic and physiologic changes in the adolescent's body and psychologically, the adolescent faces new challenges (Hendren, 1990). Adolescence period is also said as transition from a state of dependent childhood

to independent or autonomous adulthood, thus the adolescent is said to face the challenge of learning this newly developed cognitive abilities (Hendren, 1990).

Secondary school students belong to the adolescence age group. In Malaysia, there are two main public secondary boarding school which are conventional boarding school and religious boarding schools. Conventional boarding schools are governed by federal government specifically Kementerian Pelajaran Malaysia and MARA. On the other hand, there are three types of religious school in Malaysia which are national religious school governed by federal government, state religious schools governed by state government and government aided- religious schools which are governed by both federal and state government (Blueprint, 2016). For the government aided religious boarding schools, the requirement to enter these schools are similar to conventional boarding schools.

Only selected students who are excellent in academic and extracurricular activities are eligible to enroll in those boarding schools. In our country, boarding schools really emphasize on the academic achievement among their students. Thus, this theoretically put a higher stress to the students compared to students in normal schools. Students in religious boarding schools have additional religious curriculum that they need to learn on top of the standard national curriculum making their student's life more challenging. However, many parents and students nowadays really wish to receive a secondary education in boarding school either conventional or religious boarding schools. Whether the parents or students realized or not, the initial transition to the boarding schools is very challenging as the students need to function autonomously without support and familiarity of the family with which they previously attached to (Mander *et al.*, 2015). As time progress, most of the students were able to cope well with the challenges. However, in the event of significant stressors especially in a very challenging academic

environment, helps from family members is quite difficult to seek but still it is accessible for them.

There are several sources of stress that can be identified such as physical and mental factor, school factor, relationship factor and family factor (Akande *et al.*, 2014). Study conducted among secondary boarding schools students in Kuala Lumpur showed academic, interpersonal, intrapersonal, teacher, learning and teaching and social group stressors were the significant source of stress among them (Wahab *et al.*, 2013). They also found that academic related stressors was the strongest association with the depression, anxiety and stress among the students (Wahab *et al.*, 2013) compared to other type of stressors as academic excellence was the priorities for them. A study involving secondary boarding school students in Kota Bharu, Kelantan also found academic related stressor was the major stressor (Yusoff *et al.*, 2011).

There are several factors associated with the development of stress among adolescents. Previous studies have shown that the factors of psychological stress among adolescents were related to sex (Akande *et al.*, 2014), socioeconomic status (Wadsworth *et al.*, 2008), coping strategy (Yusoff, 2010; Yusoff *et al.*, 2011), academic requirement (Bhasin *et al.*, 2010) and social support from parent and teachers (Yusoff *et al.*, 2011). In addition, adolescents living in poverty are at higher risk for developing psychological stress (Wadsworth *et al.*, 2008) and those who had poor academic performance had a high level of depression, anxiety and stress (Bhasin *et al.*, 2010).

Religiosity has been shown to associate with stress level in non-adolescent context (Gardner 2014), for instance a study among college students showed that high level of religiosity were able to prevent unwanted ramifications and promote favourable outcomes to improve psychological health (Merrill *et al.*, 2009).

This study meant to look at the prevalence of stress among boarding school students in Kelantan including conventional and also government aided religious boarding schools, and their associated factors.

1.2 Rationale of the study

Stress is a common problem in adolescence worldwide. Prevalence of stress or depressive symptoms among adolescence in United State is reported as 12.8% (Perou *et al.*, 2013). In Malaysia, the prevalence of stress is higher where in 2010, there was study conducted among secondary school students in Kelantan which showed 26.1% of the students were stressed (Yusoff, 2010). In 2013, a similar study was repeated in Melaka and the prevalence of stress among high schools students was 47.6% (Jett Lin and Yusoff, 2013). Clearly, the psychological stress is a major issue in adolescence nowadays.

Prevalence of stress among boarding school students is increasing as study done earlier in 2011 among secondary boarding school students in Kelantan reported prevalence of 26.6% (Yusoff *et al.*, 2011) while in 2013 the prevalence of stress among secondary school students in Kuala Lumpur was 44.9% (Wahab *et al.*, 2013). In boarding schools, multiple factors may lead to stress among students including feeling of homesickness, academic pressure and lack of parental support (Wahab *et al.*, 2013).

As mentioned before, religiosity is one of the proven factors that influence level of stress. Higher levels of religiosity have the potential effect to prevent negative and promote positive outcomes associated with stress (Merrill *et al.*, 2009). In Malaysia, there are several studies conducted on mental health illness particularly regarding stress among adolescence. These studies are concerned on revealing the prevalence; find out the stressors and how the adolescent cope with the stress. There is paucity of specific study

conducted to find out the factor associated (ie;religiosity, coping mechanism) with the stress among adolescent in Malaysia.

This study aimed to determine the prevalence of stress among adolescents in boarding schools and to explore the potential relationships of their stress status with religiosity and other factors. Hopefully, by exploring and understanding the possible factors of psychological distress among adolescent will provide useful information for designing future educational intervention to remedy this situation.

CHAPTER TWO

LITERATURE REVIEW

2.1. Burden of Stress

Stress is one of the mental health problem in adolescent and has become an important public health issue in the United States and other parts of the world because of their prevalence, early onset, and impact on the child, family, and community in which can lead to poor outcome if left untreated (Perou *et al.*, 2013). Prevalence of stress or depressive symptoms among adolescence in United State is reported as 12.8% (Perou *et al.*, 2013).

On an individual level, mental health problems including stress can cause deteriorating effects on young people's social, intellectual and emotional development and consequently on their future (Stengård and Appelqvist-Schmidlechner, 2010). To the poor extend, it may cause loss of life. Suicide is one of the three leading causes of death in young people and a public health concern in many European countries (Stengård and Appelqvist-Schmidlechner, 2010). There is one study showing that as stress level increase, the suicidal attempts tend to increase too (Wilburn and Smith, 2005). The prevalence of suicidal ideation in Malaysian adolescent is quite high which is 7.9% (Ahmad *et al.*, 2014) and this is worrying for any nation since there are close links between child and adult mental illness where presence of mental health illness during childhood increase the chances of getting mental health during adulthood (Bardone *et al.*, 1996).

Apart from that, acute or chronic stress in adolescent can lead to drug or substance abuse where they use drug to enhance moods and alleviate emotional distress (Sinha, 2001). The studies demonstrate that adolescents who are facing high recent negative life

events show increased levels of drug use and abuse. Negative life events such as loss of parent, parental divorce and conflict, low parental support, physical violence and abuse, emotional abuse and neglect, isolation and single-parent family structure have all been associated with increased risk of substance abuse (Sinha, 2008). Besides, relapse in drug user also can be triggered by stress (Sinha, 2001). Adolescents with work stress (low job satisfaction, and dissatisfaction with perceived personal safety and the safety of their possessions) are more likely to use alcohol (Liu *et al.*, 2014).

Poor school achievement is one of the impacts that can be seen other than substance use, criminal behaviour, and other risk-taking behaviours (Wahab *et al.*, 2013). Students with psychological stress tend to do poorly in school compared to those who have no stress (Alva and de los Reyes, 1999). Hence school performance may be the cause or the results of stress among school students

2.2 Adolescent in boarding schools

For the secondary boarding school students, the most crucial time is during their early phase in the school because it is the transition time from primary to secondary school and it involves coping with multiple changes at the same time (Mander *et al.*, 2015). Many of them experience first time away from home as well as their first encounter with a secondary school environment and this may lead to homesickness (Mander *et al.*, 2015). Earlier study by Fisher, Elder and Peacock on 112 adolescents, found overall 78 percent of students reported feeling homesick (Fisher *et al.*, 1990). However as time progress, these students might feel better as they adapt well with the changes. A study done in Queensland on 36 boarding school students showed that, 60% of them experienced homesickness as a temporary feeling which was part and parcel of boarding school life and was get used to it over time (Bramston and Patrick, 2007).

Stress among the boarding schools students were higher at 44.9% (Wahab *et al.*, 2013) compared to non-boarding school students (Yusoff *et al.*, 2011). It was also reported that boarding school students experienced greater emotional problems and overall total difficulties than non-boarding school student (Mander *et al.*, 2015). Other than feeling of homesickness, other stressors among boarding school students were academic related, teacher related, intrapersonal related, interpersonal related, teaching related and social group related (Wahab *et al.*, 2013). As most of study elsewhere, the biggest stressor among these students was academically related (Wahab *et al.*, 2013).

2.3 Assetments of stress

There are several stress questionnaires such as General Health Questionnaire (GHQ), Perceived Stress Score (PSS), The Ardell Wellness Stress Test and Depression Anxiety Stress Score (DASS) that can be used to asses stress status. The widely used tools in our population were GHQ questionnaire and DASS questionnaire because of its availability in validated Malay version (Jett Lin and Yusoff, 2013; Wahab *et al.*, 2013; Yusoff *et al.*, 2011)

2.4 Factor Associated With Stress

2.4.1 Sex

There are multiple factors associated with the development of stress among adolescent. One of it is the sex of the student. It is commonly belief that hormonal changes directly influenced adolescent behaviour (Hendren, 1990). Earlier study found that the gender differences in depressive disorders evident in early adolescent were explained by the experience of early adolescent changes(Petersen *et al.*, 1991). They found that at 17 years old, girls showed significantly more depressed affect and poorer emotional tone than boys because of early adolescent changes (Petersen *et al.*, 1991). They attributed this to the timing of pubertal change as most girls started to experienced pubertal changes prior to or simultaneous with school change (Petersen *et al.*, 1991). On the other hand, adjustment disorder such as poor self-image and behaviour problems were associated in boys with a cluster of physical and biochemical findings characteristic of late maturers (Hendren, 1990). These included lower sex steroid level, lower pubertal stages, and relatively high adrenal androstenedione levels(Hendren, 1990).

Prashanth et al in their study among Malaysian university students found that being female was significantly associated with stress and they postulated gender-based differences were in keeping with the viewpoint that females may perceive similar life events as more negative compared to males, which could have contributed to their higher stress scores (Talwar *et al.*, 2017). Other than that, our cultural and social norms may have led the male students to practice acceptable responses and these gender-typed expressions of stress could play a significant role in differential responses (Talwar *et al.*, 2017). Other vulnerabilities such as developmental (e.g., emerging adulthood) and biological (e.g., hormonal factors) differences between male and female respondents may likewise have accounted for the gender-based variance (Talwar *et al.*, 2017).

2.4.2 Socioeconomic status of family

Association between poverty or low socioeconomic status (SES) and poor physical and mental health is well established (Wadsworth *et al.*, 2008). Adolescents who live in poverty are at an increased risk for anxiety, depression, conduct problems, and substance use, as well as poorer physical health (Wadsworth *et al.*, 2008). Poor economic status or low parental income may cause distress to adolescence when they are unable to pay bills, not having money for school supplies, and having limited access to family recreational activities (Wadsworth *et al.*, 2008). However, in two studies conducted in Malaysia showed no significant association between family income and depression and stress in secondary school students (Hau Jett Lin, 2013; Wahab *et al.*, 2013). This could be because of the majority of the students come from families with high socioeconomic status (Wahab *et al.*, 2013). However, there is significant association between family income and anxiety (Wahab *et al.*, 2013).

2.4.3. Family factors

Other than socioeconomic status of the adolescent's family, environment surrounding the family may affect the adolescent's mental health. Adolescent with stable emotion usually came from happy family while unhappy family may disturb the adolescent's emotion (Sham, 2015) . Several aspects in the family factor may influence adolescent stress such as marriage stability, family environment, behavioural patterns of parents, family educational background, socioeconomic of parents, quality of relationship between parents and children and quality of relationship between siblings (Sham, 2015). Family-level factors, including family connectedness and family cohesion, have been found to be protective features for mental health problems (Sujoldžić *et al.*, 2006). Study among university students showed that, those who had a poor relationship with parents, were significantly associated with depression, compared to those indicating a good relationship (Talwar *et al.*, 2017). They postulated that the significant association between poor parental relationship and depression may have emerged due to particular pathogenetic dimensions within the family environment of the responding students such as the influence of parental characteristics (e.g., changes in family structure, maladaptive behaviour, depressive mood), quality of parental bond (e.g., decreased parental nurturance, increased parental rejection, poor attachment), and parenting styles (e.g., harsh discipline, excessive monitoring/ permissiveness, abuse) (Talwar *et al.*, 2017).

In respect to parenting style, authoritative style of parenting will produce children with high self-esteem while permissive parenting style produced low self-esteem children and this show adolescents need not only affection and closeness from their parents but also exigency and high standards (Mogonea and Mogonea, 2014).

2.4.4 Academic achievement

Academic performance or achievement can be a risk factor for developing stress. In a study done in India among adolescent students, the prevalence of depression, anxiety and stress are higher among those with lesser academic performance (Bhasin *et al.*, 2010). On the other hand, the consequence or complication of stress can also be viewed in term of academic achievement aspect. Besides affecting psychological wellbeing, poor negative emotion such as stress will adversely affect the students' academic performance (Hashim *et al.*, 2012). Several studies show that poor academic performance is related to stress and negative feeling during school time (Kaplan *et al.*, 2005; Shaikh *et al.*, 2004).

2.4.5 Peer influence

Peer influences also contributes to the status of mental health among adolescent since in adolescent age they are more attached to friends. There was a study conducted to analyse a dyadic interactions among depressed and not depressed adolescents and it was found that peer behaviour may serve to reinforce depressive symptoms (Deater-Deckard, 2001). That is, depressive behaviours such as withdrawal and sadness that occurred during interaction increased the likelihood of hostility in the interaction partner and reduced the likelihood of positive pro social behaviour in the partner (Deater-Deckard, 2001). In addition, peer influences on suicide ideation and attempts have also been identified where among other precipitating factors such as poor self-esteem, depressive symptoms, and trauma, having a friend who had attempted suicide was also a predictor of attempts suicide among adolescent (Deater-Deckard, 2001).

2.4.6 Religiosity

In live of many individuals, religion is a fundamental part and has been associated with a range of beneficial outcomes for mental health, well being and quality of life (Gardner *et al.*, 2014). Many studies had been carried out particularly in Western to examine the protective factors associated with religion and mental illness. There is significant difference in level of depression and anxiety among highly religious people compared to those who did not view themselves as highly religious (Jansen *et al.*, 2010). It shows that level of religiosity is a significant protective factor for mental health illness (Jansen *et al.*, 2010). Among the Muslim population, there is study done in Algeria which found that individuals with high scores on religion practice record high score on personal well being (Tiliouine *et al.*, 2009). Another study among Kuwait University undergraduate showed positive association between level of religiosity and self rating scale of physical health, mental health, happiness and satisfaction with life (Abdel-Khalek, 2010)

Religion exerts its positive effects via the provision of coping strategies that help a person during time of stress (Ano and Vasconcelles, 2005). Study in USA showed religiosity had beneficial influence on both positive and negative influence related to stress among college students (Merrill *et al.*, 2009). Among the negative stress-related outcomes that were considered, religiosity had the greatest influence on lowering feelings of anger when things happen outside of one's control or being upset because of an unpredicted event (Merrill *et al.*, 2009). Among the positive outcomes associated with stress, religiosity had the greatest effect on promoting feelings of confidence in one's ability to handle personal problems (Merrill *et al.*, 2009). In New Zealand, there is study on association between positive and negative religious coping, religiosity, stress and quality of life of Muslim university students (Gardner *et al.*, 2014). Positive religious

coping strategies include spiritual connection, seeking spiritual support, religious forgiveness, collaborative religious coping, benevolent religious appraisal, religious purification, and religious focus (Gardner *et al.*, 2014). On the other hand, negative religious coping strategies are spiritual discontent, punishing God reappraisal, interpersonal religious discontent, demonic reappraisal, and reappraisal of God's power (Gardner *et al.*, 2014). They found that positive religious coping is moderately to highly positively correlated with the measure of spirituality or religiosity and there is positive correlations of negative religious coping with perceived stress and negative correlations of negative religious coping (Gardner *et al.*, 2014)

2.4.7 Coping mechanism

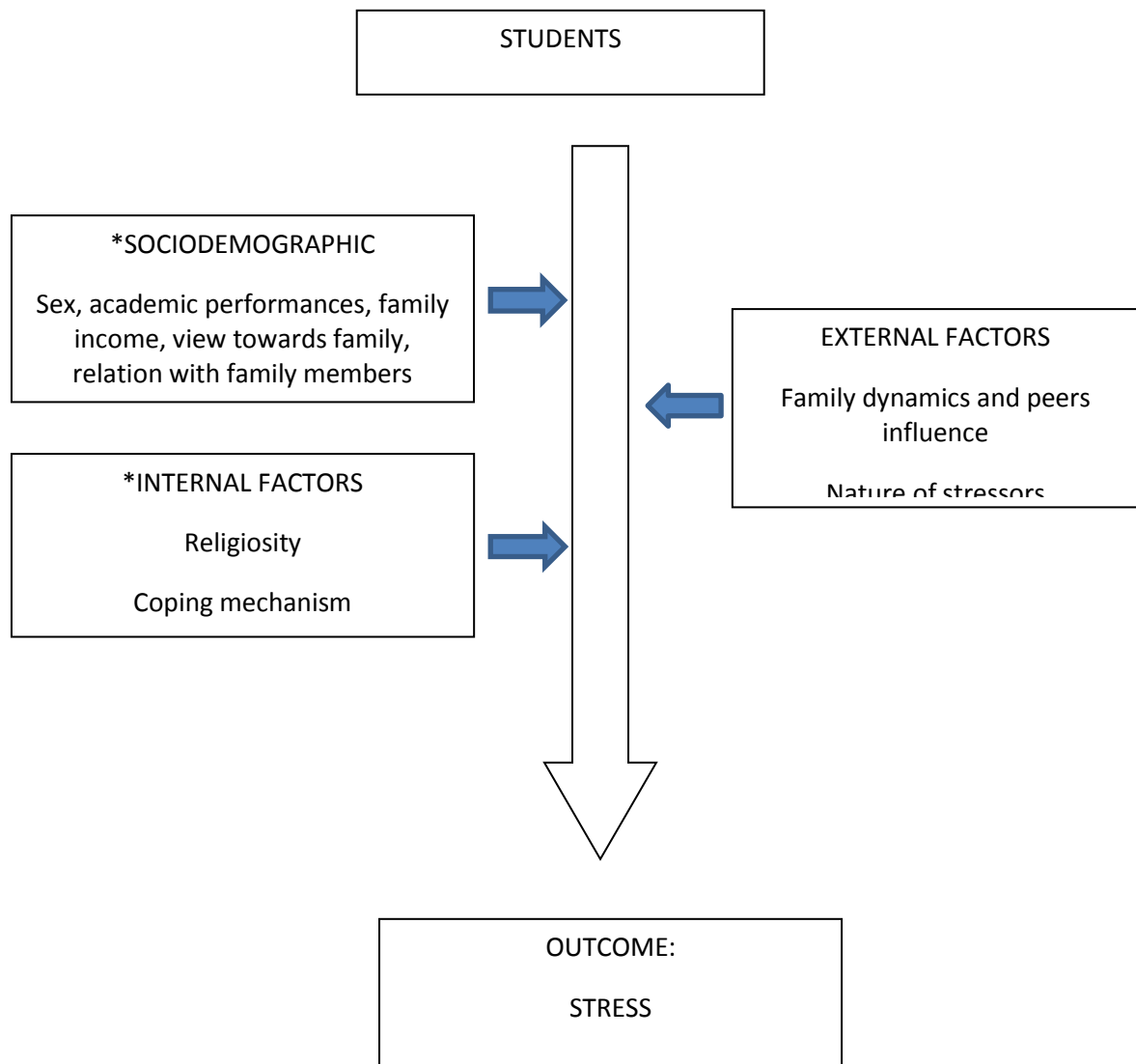
Coping refers to the behavioural or cognitive response that people use to manage stress (Wills and Shiffman, 1985). It is also defined as the cognitive and behavioural efforts to control, lessen, or tolerate internal and/or external demands produced by a stressful experience (Lazarus and Folkman, 1984). Since the negative impact of stress on individual's physical and mental health is well established, effective coping strategies are thus crucial to maintain good quality of life and psychological well being (Gardner *et al.*, 2014). Coping has two basic functions, to manage emotion or distress (i.e., emotion-focused coping) and to deal with the problem that is causing the distress (i.e., problem-focused coping) (Hashim, 2007).

Lazarus and Folkman (1984) proposed that coping with stress involves both emotion-focused and problem-focused coping. Emotion-focused coping may involve cognitive strategies for minimizing stress such as distancing, avoidance, positive comparisons, self-blame, reappraisal, and looking for positive meaning in negative

events. Problem-focused coping involves problem-solving strategies such as weighing costs and benefits, considering alternatives, and defining the problem. The distinction between emotion- and problem-focused copings provides insight into the various ways people appraise and respond to stress.

Besides, coping mechanism can be described as adaptive and maladaptive coping which can differentiate between healthy and unhealthy coping behaviours. Healthy coping strategies successfully diminish the amount of stress being experienced and provide constructive feedback for the person while unhealthy coping strategies might be successful at managing or abating stress, but the result is dysfunctional and non-productive. The use of different types of coping strategies may relate to how effectively an individual cope with stress, which in turn relates to the level of stress experienced by the individuals.

2.5 Conceptual Framework



*Factors studied

Figure 1: Conceptual Framework

CHAPTER THREE

OBJECTIVE, RESEARCH QUESTIONS AND HYPOTHESES

3.1 General Objectives

To study the prevalence of stress and its associated factors among secondary boarding school students in Kelantan.

3.2 Specific Objectives

1. To determine the prevalence of stress among secondary boarding school students in Kelantan
2. To identify the associated factors for stress among secondary boarding school students in Kelantan

3.3 Research Questions

1. What is the prevalence of stress among secondary boarding school students in Kelantan?
2. What are the factors associated with stress among secondary boarding school students in Kelantan?

3.4 Hypothesis

Socio demographic factors and internal factors are significant associated factors for stress among secondary boarding school students in Kelantan

CHAPTER FOUR

METHODOLOGY

4.1 Study Design

This is a cross sectional study

4.2 Study Duration

From February 2017 to May 2017

4.3 Study Area

The study was conducted in secondary boarding schools in Kelantan

4.4 Reference Population

Secondary school students in Kelantan

4.5 Source Population

Secondary school students in boarding school in Kelantan

4.6 Study Population

4.6.1 Inclusion criteria

- a. Form 4 student

- b. Muslim student

4.6.2 Exclusion criteria

- a. Students who are absent on the day of data collection

4.7 Sample Size Calculation

Sample size was calculated for each objective and the biggest sample size was taken for the study. For objective number one, the estimated sample size was calculated based on study done in Kuala Lumpur which reported the prevalence of stress among secondary boarding school students as 26.6 % (Yusoff *et al.*, 2011). A single proportion formula was used to calculate the sample size.

$$n = \left(\frac{Z}{\Delta} \right)^2 \times [P (1 - P)]$$

Where n (sample size)

Z (the value to estimate the = 1.96

95% confidence interval)

Δ (precision or detectable deviation) = 0.06

P (estimated population proportion) = 26.6%

Design effect: 2

Thus, after considering the design effect, sample size calculated was 410 and after considering the 20% rate for non-respond, the number of student needed for this study was 492.

For objective number two, the sample size to determine associated factors of stress among secondary boarding school students was done using Power and Sample Size calculation software. The sample size for comparing two means using the Power and Sample size calculation (PS) was used for numerical variables where σ^2 (the population variance, standard deviation from study reference) and d (expected difference). Summary of the sample size calculation for objective 2 is tabulated in Table 1. The largest sample calculated was from objective 1, thus, 492 was taken as the sample size for this study.

Table 1: Sample size calculation for objective 2

	σ (standard deviation)	d, expected difference	$N \times 2$ (design effect)	$N + 20\%$ non response
Sex (Female)	7.80 (Jett Lin and Yusoff, 2013)	4	244	293
Academic performance (poor)	3.37 (Jett Lin and Yusoff, 2013)	2	184	221
Family income (low)	10.02 (Wahab <i>et al.</i> , 2013)	4	396	475
Religiosity (low)	9.53 (Abdullah <i>et al.</i> , 2016)	4	360	432

4.8 Sampling Method

This study used multistage cluster sampling method. There is a total of 16 secondary boarding schools in Kelantan including 10 conventional boarding schools under the State Education Department and 6 Islamic boarding schools under the management of Yayasan Islam Kelantan. In order to select number of participants as required by the sample size, we select the schools based on the proportion of type of schools. Three schools from conventional boarding school and two schools from Islamic boarding school were randomly sampled. For each of the selected schools, three form four classes were randomly sampled. All students from the selected classes were briefed on the study and written information were given to the parents along with the consent form. Those who were consented by their parents, give assent as well as present on the day of data collection were included in this study. The flow chart of the sampling is shown in Figure 2

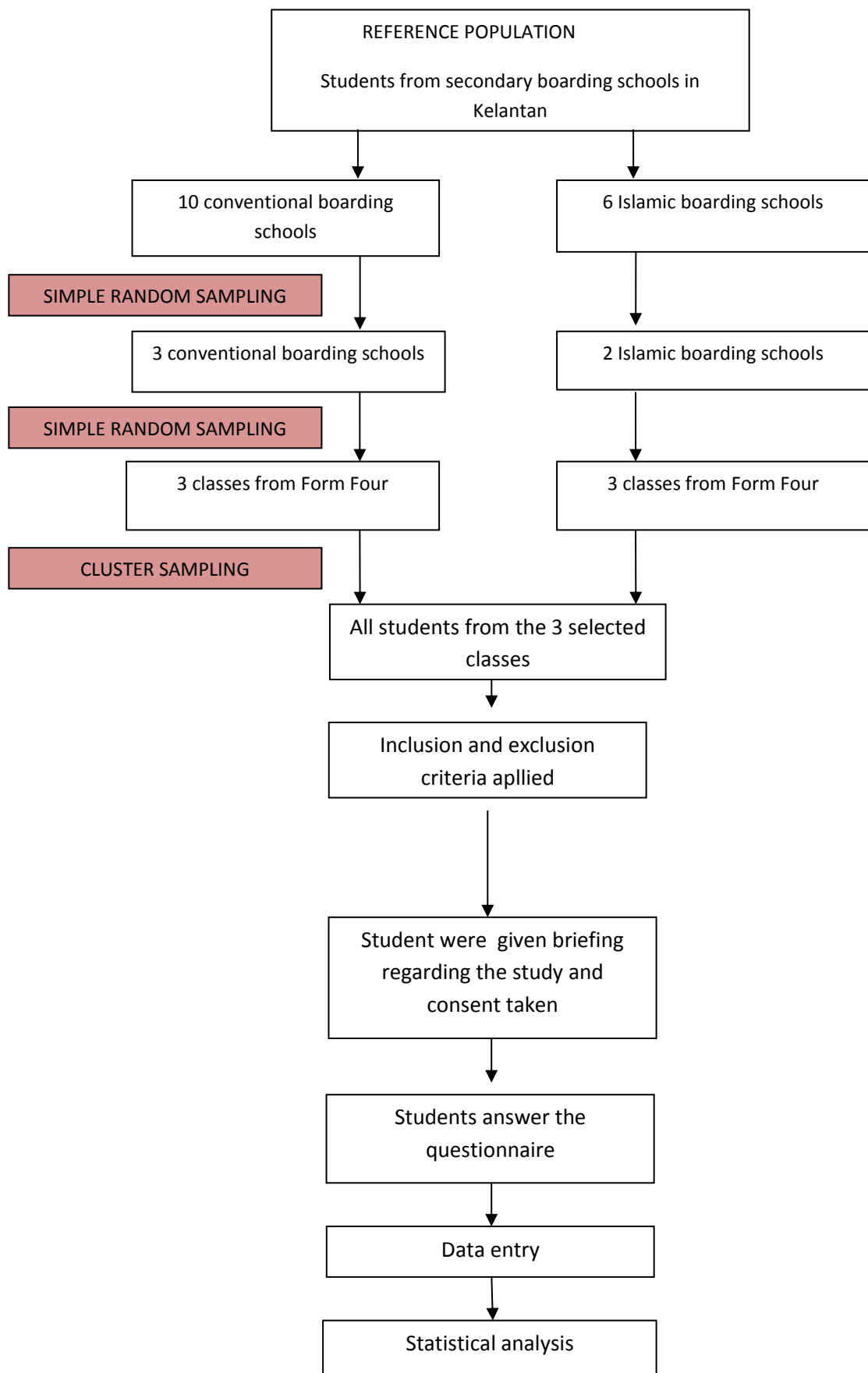


Figure 2: Study Flowchart

4.9 Research Tool

4.9.1 Part 1

The first part of questionnaire consist of sociodemographic data which included sex, household income, academic achievement (number of A's obtain in last PT3 examination) living arrangement, view towards family and perceived relation with family members .

4.9.2 Part 2

The second part consist of questions from the 12- item validated Malay version General Health Questionnaire (GHQ-12), validated Malay version Brief Coping Orientation of Problem Experienced (COPE) and the Hatta Islamic Religiosity Scale1996 (SPIH96).

4.9.2.1 Validated Malay version General Health Questionnaire

General Health Questionnaire (GHQ-12) consists of 12 items corresponding to 12 manifestations of stress. It is one of the most commonly used stress levels measurement tool with reliability coefficients ranging from 0.78 to 0.95 in various studies (Jett Lin and Yusoff, 2013). Malay version of GHQ-12 sensitivity and specificity at cut-off point of 3/4 was 81.3% and 75.3% respectively with positive predictive value (PPV) of 62.9% as well as area under ROC curve more than 0.7. The Cronbach's alpha value of the GHQ-12 was 0.85 (Yusoff *et al.*, 2010). Occurrence of each manifestation in the recent weeks were rated by the students themselves by choosing from four options: 'not at all', 'no more than usual', 'rather more than usual' and 'much more than usual'. The responses were scored using binary scoring method where the two least symptomatic answers score 0 and the two most symptomatic answers score 1 leading to the minimum total score of 0 and

maximum score of 12. The GHQ-12 score equal to or more than 4 was considered as significant distress (Yusoff *et al.*, 2010).

4.9.2.2 Validated Malay version Brief Coping Orientation of Problem Experienced

Different methods of coping mechanism have been identified using the validated Malay version Brief Coping Orientation of Problem Experienced (COPE) which consists of 28 items and 14 domains which represent the coping methods. Two items in Brief COPE represented 1 domain as shown in Table 1

Respondents are requested to rate the frequency of them doing the described items by choosing from 4 responses which will be scored 1 to 4 respectively: "I haven't been doing this at all", "I've been doing this a little bit", "I've been doing this a medium amount", and "I've been doing this a lot". The least frequency of doing answers score 1 and the most frequency of doing answers score 4. Score for each domain is the sum of the 2 items. Thus, for each domain the score ranging from 2 to 8.

The total Cronbach's alpha value of the Malay version Brief COPE was 0.83 and most of the coping strategies showed acceptable internal consistency as having Cronbach's alpha value of more than 0.5 (Yusoff, 2011)