

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/259186979>

# Psychological Distress, Sources of Stress and Coping Strategy in High School Students

Article in *International Medical Journal* (1994) · December 2013

---

CITATIONS

22

READS

10,058

2 authors, including:



**Muhamad Saiful Bahri Yusoff**

Universiti Sains Malaysia

290 PUBLICATIONS 1,777 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



Rethinking Education Environment: The Clinical Education Environment Framework [View project](#)



mentoring behaviour [View project](#)

# Psychological Distress, Sources of Stress and Coping Strategy in High School Students

Hau Jett Lin, Muhamad Saiful Bahri Yusoff

## ABSTRACT

**Background:** Excessive stress during the teen years can have a harmful impact upon both physical and mental health later in life. Pre-university students have to face various challenges in relationships, personal images and environments besides the customary academic and co-curricular activities tolls. Nevertheless, adolescents' stress is often neglected. It is of paramount importance to identify the factors associated with youngsters' stress in order to design specific and effective interventions.

**Objective:** This study reported the prevalence of psychological distress, stressors and coping strategies among high school students and contributing factors to psychological distress of the students.

**Methodology:** A cross-sectional study was conducted on the high school students in Melaka. Purposive sampling was adopted and data were collected near examination period. General Health Questionnaire (GHQ-12), Secondary School Stressor Questionnaire (3SQ) and Brief COPE inventory were used to measure psychological stress, stressors and coping strategies respectively. Statistical analysis were done by performing independent t-test, one-way ANOVA, Kruskal Wallis test, Mann Whitney U test, Pearson correlation and logistic regression.

**Result:** Approximately 47.6% of the respondents had psychological distress with major stressors being academic related. Negative coping methods were commonly used by distressed respondents.

**Conclusion:** The prevalence of psychological distress among high school students in Melaka was high. More attention should be directed by parent, schools and teachers to high school students especially around examination period. Training the students to cope positively might improve their psychological health.

## KEY WORDS

adolescent, psychological distress, coping strategies, stressors

## INTRODUCTION

Stress is a fact of nature which is unavoidable in a normal human's life<sup>1,2</sup>. Lazarus & Folkman<sup>3</sup> described stress as the problems or strains that people encounter throughout life. On the other hand, Hans Selye<sup>4</sup> an early scientist who studied stress, commenced the term stress from physics and engineering. He defined it as "mutual actions of forces that take place across any section of the body, physical or psychological." Also defined as the body's response to any unpleasant situation, this internal alarm system prepares the body to take action as a total response to environmental demands or pressure<sup>2</sup>. It allows the body to rise to a challenge and meet a tough situation with "focus, strength, stamina, and heightened alertness"<sup>5</sup>.

Stress can be a neutral, negative or positive experience<sup>1</sup>. Apart from negative events, positive occurrences may also be stressful as they involve changes to which people must adapt. Stress resulted from negative events is distress while eustress is stress caused by positive events. Regardless of the negativity or positivity of stress, a certain level of stress is required for well-being<sup>2</sup>. Selye called the responses to stress the general adaptation (adjustment) or stress syndrome<sup>4</sup>. However, excess stress, as well as long-term stressful condition, can disrupt performance and cause a variety of emotional, behavioral and physiological problems which occur in a "vicious cycle"<sup>1,2,4,5</sup>.

The effects are even more significant among adolescents as studies have shown that excessive stress during the teen years can have a harmful impact upon both physical and mental health later in life<sup>1</sup>. Adolescence, defined by World Health Organization as the period

between 10 to 19 years, frequently causes rise of apparent stress as teenagers learn to deal with increasing demands and burdens<sup>1,6,7</sup>. Nevertheless, throughout the world, adolescence is regarded as a stage of virtual health and, as such, is not perceived as a main concern. "Too often in the past, public policy has either ignored adolescents or focused on them only when they behave in ways that trouble their elders"<sup>8</sup>. As a result of this problem-oriented standpoint, the issue of adolescent health has always been overlooked and neglected<sup>9</sup>. In fact, healthy development of adolescents is of great importance viewing at its long-term consequences<sup>9</sup>. Among the multitude of factors which can influence the development, the mental well-being of adolescents is fundamental<sup>9</sup>.

Indeed, adolescents face as many or even more stress than any other age groups. As a matter of fact, young adults experience greater sensitivity towards their surroundings as well as anticipation for doing well. They strive relentlessly to live up to self's or others' expectations. This pressure to excel, along with other concerns, can drain young people's energy and result in excessive stress. Adolescents must learn to cope with all types of stress and keep themselves at a level of stimulation that is healthy and enjoyable<sup>2</sup>.

Coping refers to the behavioral or cognitive responses that people use to manage stress<sup>10</sup>. Its goal is to maintain physical and psychosocial well being. Problem-focused coping strategies aim to amend or eliminate the causes of stress while emotion-focused coping strategies are meant to get by with the affective effects of the hassle. Theoretically, coping reactions are believed to be situational specific<sup>11</sup>. For example, in conditions where an individual has the ability to control the stressor or resolve the problem, problem-centred approach

Received on October 20, 2012 and accepted on January 10, 2013

Medical Education Department, School of Medical Sciences, Universiti Sains Malaysia  
16150 Kota Bharu, Kelantan, Malaysia

Correspondence to: Muhamad Saiful Bahri Yusoff  
(e-mail: msaiful@kb.usm.my)

will be more constructive; whereas when one is not capable of managing the stressors and forced to bear, it is more useful to employ emotional-centred approach. Nonetheless, a general finding in the substance use literature has been that individuals who apply problem-focused stress-coping strategies are not as much of developing and more possible to overcome substance use problems than the individuals who practice emotion-focused stress-coping strategies, denoting that the former method is more beneficial than the latter one<sup>12-23</sup>.

Then again, there are events and occurrences which are known as stressors that can cause threat to one's coping strategies or resources<sup>2-5</sup>. Stressor covers a whole range of situations - anything that is perceived as unpleasant can be called a stressor<sup>2</sup>. It can be external factors like the physical environment, occupation, relationships, challenges and expectations of life encountered on a daily basis as well as internal factors like nutritional status, emotion, health and the amount of rest obtained<sup>10</sup>. Stressors are also not uncommon among adolescents and it affects their stress coping capabilities.

In Malaysia, mental health studies have been done on secondary school students which comprised of a big part of adolescence but as far as concerned, there is not any commentary of this kind done on pre-university students. Pre-university students age from 18 to 19 which is the eldest in the group. Amongst the pre-university routes available in the country, form six which is run by the government under the Ministry of Education, is one of the preferable choices as it is tuition fee-free<sup>24</sup>. Form six is a one-and-a-half-year programme which is divided into Lower Six and Upper Six. Graduates from form six may enter local or overseas universities to pursue their undergraduate studies.

There are always complains about the stressful lives of form six. These adolescents not only have to strive hard in both academic and co-curriculum in order to get a place and desired course in university, they have to go through the challenges in this stage of life as in relationships, personal images, environments and many others<sup>25</sup>. Their mental well-being is crucial as it will affect their personal growth and development, involvement in substance use, as well as contribution to family and society.

This study aimed to find out the prevalence and level of psychological distress, stressors, and coping strategies among the high school students in order to create awareness and develop better approaches to constructing healthy generations of adolescents.

## METHODOLOGY

### Study design

A cross sectional study was conducted on the upper six students in six high schools in Melaka. The students were from three different main streams of study; Biology, Physics and Art streams. Typically they took 4 to 5 subjects according to the requirements of their streams of study. All upper six students aged 19 based on the Malaysian Curriculum of National School (KBSM).

### Sample size and sampling method

Sample size calculated using SPSS software based on power of 80%, significance level of 0.05 and prevalence of stress of 30% was 272. Modified sample size after 30% dropout rate was 388 students. Purposive sampling was adopted in selecting the schools and participants due to logistic and time constraints.

### Study instruments

A self-reporting questionnaire consisting of two parts was used for data collection. The first part collected the socio-demographic data which included information on gender, race, religion, streams of study, involvement in co-curricular activities, academic performance, household income, parents' relationship status, and parents' education level. The second part comprised of questions from the 12-item General Health Questionnaire (GHQ-12), Secondary School Stressor Questionnaire (3SQ), and Brief Coping Orientation of Problem Experienced (COPE)<sup>26-28</sup>.

GHQ-12 which consists of 12 items corresponding to 12 manifestations of stress is one of the most commonly used stress levels measurement tool with reliability coefficients ranging from 0.78 to 0.95 in various studies<sup>29</sup>. Occurrence of each manifestation in the respon-

dents in the recent weeks were rated by 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 - i.e. 0-0-1-1; leading to the minimum total score of 0 and maximum score of 12. A score of 4 or more was deemed a case; the sensitivity and specificity of the GHQ-12 score at cut-off point of 4 being 81.3% and 75.3% respectively with positive predictive value of 62.9%<sup>26</sup>.

The validated and reliable 3SQ was used to ascertain stressors of high school students. It comprises of items describing 44 possible sources of stress rated by five responses: "causing no stress at all", "causing mild stress", "causing moderate stress", "causing high stress" and "causing severe stress". Score of 0 to 4 were assigned to the respective aforementioned responses. There were six domains with Cronbach's alpha values that range from 0.58 to 0.90: academic related stressors (ARS), intrapersonal related stressors (IntraRS), interpersonal related stressors (InterRS), learning and teaching related stressors (LTRS), teacher related stressors (TRS) and group social related stressors (GSRS)<sup>27</sup>.

Stress managing approaches were identified using the validated Brief COPE which consists of items representing 28 coping methods and 14 domains. Respondents were requested to rate the frequency of them doing the described items by choosing from 4 responses which were 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 domains of the Brief COPE were acceptance, denial, active coping, behavioral disengagement, seeking of instrumental support, seeking of emotional support, focus on and venting of emotion, positive interpretations, planning, humor, turning to religion, self distraction, substance abuse, and self blame. The reliability coefficients of the coping strategies have ranged from 0.50 to 0.82<sup>28</sup>.

### Data collection and Ethical Issues

Data collection was done near examination to measure the stress level of high school students, a period considered to be most stressful for students. Guided self-administered questionnaires were distributed to the high school students during face-to-face sessions in school halls. A detailed explanation about the study was delivered to the respondents before written informed consent obtained. Filling in the questionnaire took about 15 to 25 minutes and they were returned on the same day.

The study protocol was reviewed and approved by the Research Ethics Committee, School of Medical Sciences, Universiti Sains Malaysia and permissions from Ministry of Education and schools were obtained to have their students as respondents. Completion of the questionnaires was voluntary. Confidentiality of the data was strictly maintained as only researchers could access to the data.

### Statistical analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) version 18. All data collection forms were given serial numbers. The researcher used alpha ( ) at 0.05 and confidence interval of 95%. Descriptive statistics was applied for analysis of the demographic data, the prevalence of psychological distress and sources of stress. Comparison of the coping strategies commonly used by non-distressed and distressed respondents was performed using independent t-test. Moreover, independent t-test, one-way ANOVA, Kruskal Wallis test, Mann Whitney U test, Pearson Correlation, and Logistic regression were used to identify the factors associated with psychological distress level. Furthermore, Binary Logistic Regression was applied to determine risk factors for developing psychological distress.

## RESULTS

382 (98.5%) Upper Six students aged 19 from 6 secondary schools in Melaka responded to this survey, 168 (56.0%) of whom were female. There were similar proportions of students from all three streams of study. 31.9% of them were from Biology, 29.6% from Physics and 38.5% from Art stream. Approximately three quarters of them were Chinese while Malays, Indians and Eurasians made up one quarter of the respondents.

**Table 1. Top 10 stressors ranked by mean degree of stress as perceived by high school students (identified by 3SQ)**

Rank	Item	*Degree of stress Mean (SD)
1	Afraid of not getting university placement	2.75 (1.26)
2	Examination	2.70 (0.97)
3	Too many to be learnt	2.59 (1.08)
4	Getting poor marks	2.56 (1.15)
5	Lack of revision time	2.43 (1.08)
6	High self-expectation	2.40 (1.17)
7	Getting behind revision schedule	2.36 (1.11)
8	Difficulties in understanding content that have been learnt	2.29 (1.06)
9	Unable to answer questions from teachers	2.19 (1.15)
10	Competitive learning environment	2.15 (1.15)

\*Degree of stress classification:

0 - 1.00 is 'causing nil to mild stress', 1.01 - 2.00 is 'causing mild to moderate stress', 2.01 - 3.00 is 'causing moderate to high stress' 3.01 - 4.00 is 'causing high to severe stress'

**Table 2. Coping strategies that commonly used by distressed respondents compared to non-distressed respondents**

Coping Strategies	Stress Status	N	p-value	Mean	Standard Deviation	95% CI of the difference	
						Lower	Upper
Self-distraction	Non-distress	201	< 0.05	5.19	1.45	-0.6404	-0.0514
	<b>Distress</b>	181		<b>5.54</b>	1.47	-0.6405	-0.5128
Use of instrumental support	Non-distress	201	< 0.05	5.01	1.29	-0.6116	-0.5325
	<b>Distress</b>	181		<b>5.34</b>	1.47	-0.6132	-0.0517
Focus on and venting of emotion	Non-distress	201	< 0.001	4.43	1.30	-0.8559	-0.2826
	<b>Distress</b>	181		<b>5.00</b>	1.52	-0.8579	-0.2806
Self-blame	Non-distress	201	< 0.001	4.23	1.44	-1.0805	-0.4549
	<b>Distress</b>	181		<b>5.00</b>	1.65	-1.0826	-0.4528
Behavioral disengagement	Non-distress	201	< 0.001	3.18	1.10	-1.0250	-0.5080
	<b>Distress</b>	181		<b>3.95</b>	1.39	-1.0279	-0.5051
Denial	Non-distress	201	< 0.01	3.20	1.40	-0.8456	-0.2313
	<b>Distress</b>	181		<b>3.74</b>	1.61	-0.8472	-0.2297

\*Independent t-test; significant at  $p < 0.05$

It was a cause of concern to note that nearly half (47.6%) of the respondents were psychologically distressed. However, there were no significant differences in the distress status of respondents with regards to their gender, stream of study and ethnicity.

It was not surprising to find that top ten stressors perceived by the students were related to academic matters (Table 1). The mean degree of stress for the top two stressors i.e. "afraid of not getting university placement" and "examination" were just under 70% of the total score of 4. Meanwhile, the other eight items in the list of top 10 stressors have the mean degree of stress which is around three-fifths of the total score.

As for coping strategies, methods used most frequently by distressed individuals were self-distraction, use of instrumental support, focus on and venting of emotion, self-blame, behavioral disengagement and denial with the mean score rated as 50 to 70 percent of the overall score of 8 (Table 2).

Using statistical analysis, there were sixteen factors found to be associated with distress among high school students (Table 3), of which fifteen were positively correlated with distress development. Positive reinterpretation is negatively correlated with development of distress, denoting that one is less likely to develop distress if he or she applied positive reinterpretation in coping with stress.

By performing Binary Logistic regression (Forward Stepwise Method), students who perceived intrapersonal relationship as stressor and who used behavioral disengagement and self-blame as coping strategies were found to have greater risk of developing distress

(Table 4).

There was no significant influence of gender, race, religion, stream of study, parents' education level and occupation, parent relationship status, household income, and involvement in co-curricular activities towards stress level of high school students.

## DISCUSSION

Psychologically distressed respondents (47.6%) were almost 2.5 times the WHO expected frequency of adolescents' mental health problems (20%)<sup>30</sup>. This might be due to the high pressure of examination, consistent with other studies conducted during this period<sup>31-33</sup>. However, the nature of examination as a stressor for students should be investigated and clarified to construct more explicit interventions. Nevertheless, the high proportion of students who were psychologically distressed summoned that attention should be directed towards students' mental health as this growing pattern of stress level among students might lead to undesired effects<sup>34-37</sup>.

Major stressors of the students were mainly related to academic matters. This was in consistency with previous studies<sup>31,38-46</sup>. It was remarkable to note that "afraid of not getting university placement" topped the list. This might be possibly due to the factor that mere excellent result does not guarantee a seat in desired course in a local public university<sup>47</sup>. As these high school students were anxious about their future, education fairs should focus more on alternative routes

**Table 3. Factors associated with distress among high school students.**

Significant factors interpreted by applying Pearson correlation		
Variables	GHQ score	
	(r) <sup>1</sup>	p-value <sup>2</sup>
Intrapersonal related stressors	0.521	< 0.001
Academic related stressors	0.453	< 0.001
Learning and teaching related stressors	0.382	< 0.001
Behavioral disengagement	0.357	< 0.001
Self-blame	0.323	< 0.001
Group and social related stressor	0.300	< 0.001
Interpersonal related stressors	0.281	< 0.001
Teacher related stressors	0.266	< 0.001
Denial	0.223	< 0.001
Venting	0.175	< 0.01
Self-distraction	0.158	< 0.01
Positive reinterpretation	- 0.145	< 0.01
Substance abuse	0.115	< 0.05

<sup>1</sup>Pearson Correlation Coefficient (r);  $r > 0.7$  = strong correlation,  $0.3 \leq r \leq 0.7$  = moderate correlation,  $r < 0.3$  = weak correlation; <sup>2</sup>significant at  $p < 0.05$

#### Significant factor interpreted by applying One way ANOVA

Variables	GHQ score		F-stat	p-value <sup>3</sup>
	Mean	SD		
Academic performance	top 10	3.16 2.77	6.27	0.002
	middle	4.15 3.24		
	last 10	4.78 3.37		

<sup>3</sup>One way ANOVA,  $p < 0.05$  as significant level.

#### Significant factor interpreted by applying Independent t-test

Variables	GHQ score		t-stat	p-value <sup>4</sup>
	Mean	SD		
Alcohol intake	Yes	4.59 3.26	2.91	0.004
	No	3.61 3.10		

<sup>4</sup>Independent t-test,  $p < 0.05$  as significant level.

#### Significant factor interpreted by applying Kruskal-Wallis test

Variables	GHQ score		<sup>2</sup> stat	p-value <sup>5</sup>
	Median	IQR		
Felt lack of love from parents	Never	3 5	8.886	0.012
	Sometimes	4 4		
	Always	6.5 8.5		

<sup>5</sup>Kruskal-Wallis test,  $p < 0.05$  as significant level.

of higher study which are similar with public universities particularly financial wise.

Moreover, "too many to be learnt" and "lack of revision time" were among the top five stressors. High school students and educators should be able to recognize this problem and design more effective strategies targeting it. These may include wise time management, more interesting teaching and learning experience and helpful revision techniques.

It is interesting to highlight that high self-expectation and concern over competitive learning environment are among the top stressors too. This raises the issue of the pros and cons of these two factors. Although they could stimulate diligence and improvement, they could also result in anxiety and depression; it is not easy to restrain oneself from falling into the negative well. These two personalities are shaped over time from upbringing and personal experiences. One should really learn to deal with variable outcomes without extreme moods. He should prepare himself in mental and resource wise as

**Table 4. Risk factors for distress development among high school students.**

Factors	B	Wald	df	p-value*	Odd ratio	95% C.I.for	
						Lower	Upper
<b>Intrapersonal Related Stressors</b>							
Nil to mild stress		57.276	3	< 0.001			
Mild to moderate stress	1.694	13.438	1	< 0.001	5.440	2.199	13.455
Moderate to high stress	2.899	38.020	1	< 0.001	18.159	7.225	45.636
High to severe stress	3.294	32.620	1	< 0.001	26.963	8.705	83.514
<b>Behavioral Disengagement</b>	0.513	28.057	1	< 0.001	1.670	1.381	2.018
<b>Self-blame</b>	0.320	20.903	1	< 0.001	1.377	1.201	1.580

\*Binary Logistic Regression was applied,  $p < 0.05$  was considered as significant at 95% CI. 2 (df) = 83.990 (3),  $p < 0.001$ , Nagerkerke  $R^2 = 0.320$

early as he starts facing a challenge.

Apart from that, it is noteworthy that lack of parents' attention is associated with increased level of stress among respondents. The needs of high school students who are turning adults are overlooked at many times<sup>2,48</sup>. This situation is alarming as this is not the first reported case. It is of great importance that parents and society devote more time and effort in caring these adolescents; not only when they start to behave inappropriately.

Literatures have shown that students' perceived sense of belonging, be it student-teacher relationship, in peers or among groups directly affect their motivation and achievements<sup>49-54</sup>. Thus it is not surprising that perceived problems with teacher-related stressors, learning and teaching-related stressors, interpersonal-related stressors and group and social-related stressors cause significant distress among high school students. Larger class sizes and excessive focus on personal achievement might be the reasons for fewer supportive contacts between students and teachers, among peers and groups.

Besides, as expected, students are less likely to develop distress if they perform well academically or cope by positive reinterpretation. This indicates the inter-relatedness between coping strategies, development of negative emotions and stress-related outcomes. It is possible that when one coherently adds positive meanings to his stressors, distress is avoided while positive outcomes tend to follow. Hence, it is imperative that students reinterpret stressors in positive ways and obtain balance between the motivating and taxing effects of stress in order to gain better outcomes.

Furthermore, it is worth mentioning that negative coping methods which are related to high risk of developing distress were commonly used by distressed respondents. It is possible that students will end up in the vicious cycle of worsening distress status with time. Therefore, intervention programmes should target on effective and beneficial coping strategies training.

Out of 16 associated factors identified (Table 3), only 3 are risk factors (Table 4) for distress development among high school students, i.e. intrapersonal related stressors, behavioral disengagement and self-blaming. Those who perceived intrapersonal matters as stressors were up to 83.5 times more likely to develop distress compared to those who did not (Table 4). The account of these factors contributing to distress development has been discussed in many studies<sup>39,55-60</sup>. The immature coping methods of behavioral disengagement and self-blaming also poses risks of lower self-esteem and social disintegration. As mastery and self esteem are crucial for healthy mind<sup>61</sup>, social supports like counseling groups should be more easily accessible and client-friendly to encourage students to seek help as early as possible. They should also actively identify distress students and help them to pursue positive coping strategies.

## Study Limitations

The real pattern of stress among respondents might not be well reflected due to the study design and the results may not be generalized to other high school students as the study population only involved students in a few secondary schools in Melaka. It would be interesting to find out the similarities and differences on stress level, stressors and coping strategies between high school students of different states in the country and between other types of pre-university courses available in the country. A study design that investigates the changes of the abovementioned variables over time might be able to reveal more fruitful results.

## CONCLUSION

The prevalence of distress among high school students in Melaka was high. Top ranked stressors were academic related. Negative coping strategies were commonly used by distressed students. More attention should be directed by parent, schools and teachers to high school students especially around examination period. Training the students to cope positively might improve their psychological health.

## ACKNOWLEDGEMENT

Our deepest appreciation goes to the Malaysian Ministry of Education for allowing us to involve their students in this study. We would also like to take this opportunity to extend our sincere appreciation towards the chosen schools, for allowing us to conduct our research in their schools. Our deepest gratitude also goes to all the respondents for their time, cooperation and patience to complete the questionnaires administered to them.

## REFERENCES

- 1) Stoppler MC, Marks JW. Stress symptoms, causes, signs, types, management and treatment. *MedicineNet.com*. Web. Retrieved on 5 August 2010
- 2) Rajan PS. *Adolescent mental health promotion: trainers' guide on coping with stress*. New Delhi; World Health Organization Regional Office for South East-Asia, 2003.
- 3) Lazarus RS, Folkman S. *Stress, appraisal, and coping*. New York: Springer Publishing Company, 1984.
- 4) Selye H. *Stress without distress*. New York: Harper & Row. 1974.
- 5) TeensHealth. *Stress*. Web. Retrieved on 5 August 2010.
- 6) Vijay Chandra. *Adolescent mental health promotion. WHO Regional Office for South-East Asia*. Web. Retrieved 30 July 2010.
- 7) Keeny GB, Cassata L, McElmurry BJ. *Adolescent health and development in nursing and midwifery education*. Geneva; World Health Organization, 2004.
- 8) Burt MR. Why should we invest in adolescents? *Paper presented at the Conference on Comprehensive Health of Adolescents and Youth in Latin America and the Caribbean, 9-12 July 1996*. Washington, DC, Pan American Health Organization/Kellogg Foundation. 1998.
- 9) EMRO. *A strategy for nursing and midwifery development in the Eastern Mediterranean Region*. Cairo, World Health Organization Regional Office for the Eastern Mediterranean (Technical Publications Series, No. 25). 1997.
- 10) Wills TA, Shiffman S. *Coping and substance use: a conceptual framework*. In S. Shiffman and T.A. Wills (Eds.), *Coping and substance use* (pp. 3-24). San Diego, CA: Academic Press. 1985.
- 11) Monat A, Lazarus RS. *Introduction: stress and coping: some current issues and controversies*. In A. Monat and R.S. Lazarus (Eds.), *Stress and coping: an anthology* (pp. 1-16). New York: Columbia University Press. 1991.
- 12) Finney JW, Moos RH. Entering treatment for alcohol abuse: A stress and coping model. *Addiction*, 90, 1223-1240. 1995.
- 13) Labouvie EW. Alcohol and marijuana use in relation to adolescent stress. *Int J Addict* 1986; 21: 333-345.
- 14) Epstein JA, Botvin GJ, Diaz T, Toth V, Schinke SP. Social and personal factors in marijuana use and intentions to use drugs among inner city minority youth. *Dev Beh Pediatr* 1995; 16: 14-20.
- 15) Wills TA. Stress and coping in early adolescence: relationships to substance use in urban school samples. *Health Psychol* 1986; 5: 503-529.
- 16) Wewers ME. Brief report: the role of postcessation factors in tobacco abstinence: Stressful events and coping responses. *Addict Behav* 1988; 13: 297-302.
- 17) Breslin FC, O'ÁrKeeffe MK, Burrell L, Ratliff-Crain J, Baum A. The effects of stress and coping on daily alcohol use in women. *Addict Behav* 1995; 20: 141-147.
- 18) Cooper ML, Russell M, George WH. Coping, expectancies, and alcohol abuse: a test of social learning formulations. *J Abnorm Psychol* 1988; 97: 218-230.
- 19) Wills TA, McNamara G, Vaccaro D, Hirky AE. Escalated substance use: a longitudinal grouping analysis from early to middle adolescence. *J Abnorm Psychol* 1996; 105: 166-180.
- 20) El-Bassel N, Ivanoff A, Schilling RF, Gilbert L, Chen DR. Correlates of problem drinking among drug-using incarcerated women. *Addict Behav* 1995; 20: 359-369.
- 21) Madden C, Hinton E, Holman CP, Mountjouris S, King N. Factors associated with coping in persons undergoing alcohol and drug detoxification. *Drug Alcohol Dependence*, 1995; 38: 229-235.
- 22) Sussman S, Brannon BR, Dent CW, Hansen WB. Relations of coping effort, coping strategies, perceived stress, and cigarette smoking among adolescents. *Int J Addict* 1993; 28: 599-612.
- 23) Wills TA, McNamara G, Vaccaro D, Hirky AE. Escalated substance use: a longitudinal grouping analysis from early to middle adolescence. *J Abnorm Psychol* 1993; 105: 166-180.
- 24) Malaysia Students Blog. Pre-U programme: form six (Tingkatan Enam) STPM. Web. Retrieved on 19 September 2010.
- 25) Hashim IHM. Stress, coping and social supports in the adolescent years. *Kajian Malaysia*, Jd. XXV, No. 1. June 2007
- 26) Goldberg D. *Manual of the general health questionnaire*. NFER Publishing Company. 1978.
- 27) Yusoff MSB. The validity and reliability of secondary school stressor questionnaire (3SQ) in identifying stressors among adolescents in the secondary school. *International Medical Journal* 2011; 18(2): 100-106.
- 28) Carver CS. You want to measure coping but your protocol too long: consider the brief COPE. *Int J Behav Med* 1997; 4(1): 92-100.
- 29) Jackson C. The general health questionnaire. *Occu Med* 2007; 57-59.
- 30) The World Health Report 2001. *Mental health: new understanding, new hope*. Geneva: World Health Organization, 2001; 83. Web. Retrieved on 17 June 2011.
- 31) Yusoff MSB, Yen Yee L, Heng Wei L, Hon Meng L, Xue Bin L, Chin Siong C, Abdul Rahmin AF. A study on stress, stressors and coping strategies among Malaysian medical students. *Int J Stud Res* 2011; 1(2): 45-50.
- 32) Vitaliano PP, MaiuroRD, Russo J, Mitchell ES. Medical student distress: a longitudinal study. *J Nerv Ment Dis* 1989; 177(2): 70-6.
- 33) Aktekin M, Karaman T, Senol YY, Erdem S, Erengin H, Akaydin M. Anxiety, depression and stressful life events among medical students: a prospective study in Antalya, Turkey. *Med Educ* 2001; 35(1): 12-7.
- 34) Kaplan HI, Saddock BJ. *Learning theory, In, Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry*, 8th ed, pp. 148-154. Philadelphia, Lippincott. Williams & Wilkins, 2000.
- 35) Niemi PM, Vainiomaki PT. Medical students' academic distress, coping and achievement strategies during the pre-clinical years. *Teach Learn Med* 1999; 11(3): 125-134.
- 36) Silver HK, Glick AD. Medical student abuse: incidence, severity, and significance. *JAMA* 1990; 263(4): 527-32.
- 37) Southall D, Robert JE. Attributional style and self-esteem in vulnerability to adolescent depressive symptoms following life stress: 14-week prospective study. *Cogn Ther Res* 2002; 26(5): 563-579.
- 38) Yusoff MSB. Stress, stressors & coping strategies among secondary school students in a Malaysian government secondary school: initial findings. *ASEAN J Psychiatry* 2010a; 11(2).
- 39) Yusoff MSB, Ahmad Hamid AH, Rosli NR, Zakaria NA, Che Rameli NA, Abdul Rahman NS, Abdul Rahim AF, Abdul Rahman A. Prevalence of stress, stressors and coping strategies among secondary school students in Kota Bharu, Kelantan, Malaysia. *Int J Stud Res* 2011; 1(1): 23-8.
- 40) Omizo MM, Omizo SA, Suzuki LA. Children and stressors: an exploratory study of stressors and symptoms. *Sch Counselor* 1988; 35: 267-274.
- 41) Firth J. Levels and sources of stress in medical students. *Br Med J (Clin Res Ed)* 1986; 292(6529): 1177-80.
- 42) Ko SM, Kua EH, Fones CSL. Stress and the undergraduate. *Singapore Med J* 1999; 40: 627-30.
- 43) Saipanish R. Stress among medical students in a Thai medical school. *Med Teach* 2003; 25(5): 502-6.
- 44) Yusoff MSB, Rahim AFA, Yaacob MJ. Prevalence and sources of stress among Universiti Sains Malaysia medical students. *Malays J Med Sci* 2010; 17(1).
- 45) Kaufman DM, Day V, Mensink D. Stressors in 1st-year medical school: comparison of a conventional and problem-based curriculum. *Teach Learn Med* 1996; 8(4): 188-194.
- 46) Intan HMH. Stress, coping and support in the adolescent years. *Kajian Malays* 2007; 25(1): 97-115.
- 47) Postiglione GA, Tan J. *Schooling in Malaysia. Going to school in East Asia*. The United States of America: Greenwood Press, 2007; 223-224.
- 48) Tonin Vittoria. Young people seeking mental health care. *Lancet* 2007; 369: 1239-1240.
- 49) Park CL, Cohen LH, Murch RL. Assessment and prediction of stress-related growth. *J Pers* 1996; 64: 71-105.
- 50) Reddy R, Rhodes JE, Mulhall P. The influence of teacher support on student adjustment in the middle school years: a latent growth curve study. *Dev Psychopathol* 2003; 15: 119-138
- 51) Ryan RM, Stiller JD, Lynch JH. Representations of relationships to teachers, parents

- and friends as predictors of academic motivation and self-esteem. *J Early Adolesc* 1994; 14: 226-249.
- 52) Hoge DR, Smit EK, Hanson SL. School experiences predicting changes in self-esteem of sixth-and seventh-grade students. *J Edu Psychol* 1990; 82: 117-127.
- 53) Ryan AM. The peer group as a context for the development of young adolescent motivation and achievement. *Child Dev* 2001; 72(4): 1135-1150.
- 54) Ryan A, Patrick H. The classroom social environment and changes in adolescent motivation and engagement during middle school. *Am Educ Res J* 2001; 38(2): 437-460.
- 55) Herman-Stabl MA, Stemmler M, Petersen AC. Approach and avoidant coping: Implications for adolescent mental health. *J Youth Adolesc* 1995; 24(6): 649-665.
- 56) Stewart SM, Betson C, Lam TH, Marshall IB, Lee PWH, Wong CM. Predicting stress in first year medical students: a longitudinal study. *Med Educ* 1997; 31 (3): 163-168.
- 57) Stewart S M, Betson C, Marshall I, Wong CM, Lee PWH, Lam TH. Stress and vulnerability in medical students. *Med Educ* 1995; 29(2): 119-127.
- 58) Thuen E, Bru E. Coping styles and emotional and behavioural problems among Norwegian grade 9 students. *Scan J Educ Res* 2004; 48(5): 493-510.
- 59) Sheu S, Lin HS, Hwang SL. Perceived stress and physio-psycho-social status of nursing students during their initial period of clinical practice: the effect of coping behaviors. *Int J Nurs Stud* 2002; 39: 165 -175.
- 60) Khawaja NG, Dempsey J. Psychological distress in international university students: an Australian study. *Aust J Guidance Couns* 2007; 17(1): 13-27.
- 61) Bovier PA, Chamot E, Perneger TV. Perceived stress, internal resources, and social support as determinants of mental health among young adults. *Qual Life Res* 2004; 1(1): 161-170.