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Prevalence of stress, stressors and coping strategies among secondary school students in Kota Bharu, Kelantan, Malaysia

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ABSTRACT

Introduction: In the process of growing, adolescents experience stress and their coping abilities determine the outcome. School training further adds to this stressful situation. It is noteworthy that persistently high stress levels will impair students' academic achievement, personal and professional development. This article describes the prevalence of stress, stressors and coping strategies among secondary school students in Kota Bharu, Kelantan, Malaysia. **Methodology:** A cross-sectional study was conducted on secondary school students in Kota Bharu, Kelantan, Malaysia. Secondary school and participant selections were done via stratified random sampling with a sample size of 505 students. The 12-item General Health Questionnaire (GHQ-12), Secondary School Stressors Questionnaire (3SQ) and Brief COPE inventory were self-administered to measure stress level, sources of stress and coping strategies respectively among the participants. **Results:** Out of 505 selected participants, 421 (83.36%) responded to this survey. This study found that the prevalence of distressed secondary school students was 32.8%. The major stressors for all types of schools were academic-related issues. This study showed that the students in technical school were more distressed than students elsewhere. Among the most frequent coping strategies used by the students were religion, positive reinterpretation, use of instrumental support, active coping and planning. There were relationships between intrapersonal and interpersonal related stressor, academic achievements, level of school and academic related stressor, attention from parent, behavioral disengagement, self-blame and planning coping strategies with stress level of the students. **Conclusion:** This study found that there was a high prevalence of distressed negatively stressed secondary school students, the major stressors were related to academic and contributing factors of stress were related to school training, students and parents. Training students on positive coping strategies, reducing stressor-related school training, and improving parent and teacher supports to the students will help to improve this condition.

Key Words: Secondary school students, stressors, stress, coping, mental health

Introduction

Linn and Zeppa [1] stated that some stress in school training is needed for learning. They divided stress as 'favorable' and 'unfavorable'. Stress which promotes and facilitates learning is called 'favourable' stress and the one which inhibits and suppresses learning is called 'unfavourable' stress. Students perceive the stressors differently. Some students consider a stressor as causing 'favourable stress' while other students consider the same stressor as causing 'unfavourable stress', depending on the student's cultural background, personality traits, experience and coping skills. Learning and memory are affected by stress. Although an optimal level of stress enhances learning ability [2], overstress causes physical and mental health problems [3], reduces self-esteem [1,4], causes depression [5], and affects a student's academic achievement, personal and professional development.

Stress is defined as the body's nonspecific response or reaction to demands made on it, or to disturbing events in the environment [6,7]. Furthermore, it is a process by which we perceive and cope with environmental threats and challenges [8]. In the process of growing up, all children experience stress. These experiences are potentially valuable as they may foster the development of effective coping strategies, and thus enhance overall psychological development. Schultz [9] suggested that youthful stress evolves out of child-perceived threats to his or her self-esteem, security, safety or way of life. These environmental demands or disturbing events may be physiological, physical, or psychological [10], or a combination of these. Band and Weisz [11] reported that children as young as 6 years old are aware of stress in their lives. Although they are exposed to significant levels of stress, children may lack both the necessary experience and maturity to understand stress and the intellectual and emotional resources to cope effectively with it [12]. Some investigators have suggested that the presence of stress can be used productively to build higher levels of future immunity to anxiety [13]. D'Aurora and

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Fimian [14] stated that limited and manageable levels of stress provide challenges and an enthusiasm for living.

Previous studies reported that over one-third of adolescents were under stress [15, 16]. Many of these emotional disturbances seem to be caused by school-related stress such as inappropriate workloads or assignments, examinations, falling behind compared to others and inappropriate treatment by teachers [16-18]. Coping strategy is often classified into problem-focused coping, which involves making active attempts to solve a problem; and emotion-focused coping, which involves dealing with the emotions generated by the problem [19]. Park and Adler [20] reported that more active coping styles may buffer the impact of newly encountered stressful situations on physical health, whereas the general use of active coping is related more directly to psychological well-being. Therefore, using active coping strategies will help students in improving their stress level. The adjustment of stress level through active coping strategies was described by Lazarus in 1990 [19].

The aim of this study was to bridge the current research gap arising from limited data about stress, stressors and coping strategies among secondary school students in Malaysia. The current study was designed to provide data on prevalence and sources of stress and coping strategies among secondary school students in Kota Bharu, Kelantan, Malaysia. Findings of this study were aimed at helping educators to find ways to reduce students' stress and improve their well-being during the curriculum.

Methodology

Study Design

A cross-sectional study design was used. Secondary school students (the form 4 and form 5) in the 2010 academic session from four different types of government schools (National, Technical, Boarding and Religious) in Kota Bharu, Kelantan, Malaysia were selected as the study population. All the government schools' curriculum (regardless the type of school) follow the Malaysian National Curriculum for Secondary School (KBSM) where students are grouped as form 1, 2, 3, 4 and 5 based on their age: those who at age of 13, 14, 15, 16 and 17 are in the form 1, 2, 3, 4 and 5 respectively. Thereby the age of study population ranged from 16 to 17 years. These students study similar core subjects with some additional elective subjects based on the type of school. The total number of subjects was equal for every student.

Sample size and sampling method

The study sample size calculated using single proportion formula based on 35.5% prevalence of stress [15], significant level at 0.05, precision value at 0.05 and considering 30% dropout rate, was 505 subjects. Stratified random sampling was used to select schools and participants in this study. The study subjects were recruited within the month of April 2010.

Research tools and data collection

The 12-item General Health Questionnaire (GHQ-12) was used to measure participants' stress level, the Secondary School Stressor Questionnaire (3SQ) was used to identify the stressors and the Malay Brief Coping Orientation of Problem Experienced (COPE) was used to identify coping strategies. The questionnaires were self-administered during face-to-face sessions in a hall. All data collection was done by pre-selected investigators. The participants were told to follow the instructions. The process of filling the questionnaire took about 15-25 minutes and the questionnaires were returned on the same day.

The GHQ-12 is a well-validated instrument used to measure overall emotional wellbeing and is commonly used in studies looking into distress amongst populations [21-23]. It is one of the most widely-used measurement tools to measure stress levels. Reliability coefficients of the questionnaires have ranged from 0.78 to 0.95 in various studies [22]. The items of GHQ-12 represent 12 manifestations of stress and respondents were asked to rate the presence of each of the manifestations during recent weeks. The four options provided typically are 'not at all', 'no more than usual', 'rather more than usual' and 'much more than usual'. A binary scoring method was used where the two least symptomatic answers - score 0; and the two most symptomatic answers - score 1; the above mentioned options being 0-0-1-1. The GHQ-12 scores range from 0 to 12. The sensitivity and specificity of the GHQ score, at the cut-off point of 4, were more than 75% with positive predictive value of more than 60% [21]. Thus, participants who scored GHQ-12 equal to 4 and above were considered as having significant distress and taken as 'case' in this study.

The 3SQ is a valid and reliable instrument used to identify stressors of secondary school students [28]. The items in 3SQ represent 44 possible sources of stress and consist of six domains: 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) [28]. The Cronbach's alpha values of the 3SQ domains range from 0.58 to 0.90 [24]. It is a self-reporting questionnaire and is originally in the Malay language. Respondents were asked to rate each source by choosing from five responses: 'causing no stress at all', 'causing mild stress', 'causing moderate stress', 'causing high stress' and 'causing severe stress'. The scoring method assigned points 0 to 4 to the aforementioned responses.

The Brief COPE is a validated inventory and it is used to identify methods in managing stress [25, 26]. This inventory consists of 28 items and were rated under 4 categories of responses (I haven't been doing this at all, I've been doing this a little bit, I've been doing this a medium amount, I've been doing this a lot) to indicate how frequent they have been doing what the items say. There are 14 domains covered in this form which are self distraction, active coping, behavioral disengagement, use of instrumental support, use of emotional support, focus on and venting of emotion, positive interpretations, planning, humor, acceptance, turning to religion, denial, substance abuse, and self blame. The Malay Brief COPE was used in this study as it was validated among adolescents in a Malaysian secondary school [27].

Informed consent was obtained from the participants.

Permission was obtained from the Secondary School and Universiti Sains Malaysia Ethical Committee prior to the start of the study.

Statistical analysis

Data were analysed using Statistical Package for Social Sciences (SPSS) version 12. The researcher used alpha (α) at 0.05 and confidence interval of 95%. Descriptive statistics was applied for analysis of the demographic data, the students' stress prevalence (based on GHQ-12 score), the stressors, and the coping strategies. Independent-t test was used to compare coping strategies, commonly used by distressed respondents and non-distressed respondents. Factors contributing to distress among secondary school students were analysed using binary logistic regression.

Results

Out of the 505 students selected, 421 (83.36%) secondary school students responded to this survey, 224 (53.2%) of whom were female (Table 1). Majority of participants were Malays (99%); with Islam being the dominant religious background (98.8%). Most of our respondents lived with their parents (88.6%) and never have had a lack of attention, (55.6%). The ratio of Form 4 and Form 5 was approximately 1:1 and all four schools types had an equal number of respondents.

Table 1 Demographic data

Variable		Frequency (%) (n = 421)
Gender	Male	197 (46.8)
	Female	224 (53.2)
Race	Malay	417 (99.0)
	Non-Malay	4 (1.0)
Religion	Islam	416 (98.8)
	Buddhist	1 (0.2)
	Hindu	1 (0.2)
	Christian	2 (0.5)
	Others	1 (0.2)
School level	Form 4	215 (51.1)
	Form 5	206 (48.9)
School type	National	111 (26.4)
	Technical	93 (22.1)
	Boarding	113 (26.8)
	Religious	104 (24.7)
Living with	Parents	373 (88.6)
	Grandparents	6 (1.4)
	Relatives	4 (1.0)
	Mother	35 (8.3)
	Father	2 (0.5)

The overall prevalence of distress among secondary school students in Kota Bharu, Kelantan was 32.8%. The prevalence of distress of national, technical, boarding and religious schools were 27.0%, 50.5%, 26.6% and 29.8% respectively. The highest prevalence of distress was in the technical school. The academic related stressor was the major stressor in all the four types of schools (Table 2). The top five most used coping strategies were religion, positive reinterpretation, use of instrumental support, active coping and planning (Table 3).

Table 2 Mean degree of stress perceived by the students for each stressor group across the four types of schools.

School Stressor	National	Technical	Boarding	Religious
ARS score	1.90	2.31	2.22	2.32
InterRS score	1.20	1.55	1.64	1.59
IntraRS score	1.58	1.98	1.54	1.83
LTRS score	1.38	1.61	1.47	1.50
TRS score	1.51	1.92	1.64	1.77
GSRS score	1.03	1.24	1.20	0.99

ARS = Academic Related Stressor, InterRS = Interpersonal Related Stressor, IntraRS = Intrapersonal Related Stressor, LTRS = Learning & Teaching Related Stressor, TRS = Teacher Related Stressor, GSRS = Group & Social Related Stressor.
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' and 3.01 – 4.00 is 'causing high to severe stress'.

Table 3 Rank of coping strategies based mean score rated by the students.

Rank	Coping Strategies	n	Mean	Standard Deviation
1	Religion	421	**6.29**	1.54
2	Positive Reinterpretation	421	**5.73**	1.42
3	Use of instrumental support	421	**5.21**	1.59
4	Active Coping	421	**5.19**	1.41
5	Planning	421	**4.99**	1.51
6	Self-distraction	421	4.97	1.46
7	Acceptance	421	4.88	1.50
8	Focus on and venting of emotion	421	4.72	1.45
9	Use of emotional support	421	4.69	1.49
10	Self blame	421	4.23	1.59
11	Humour	421	3.88	1.56
12	Behavioural disengagement	421	3.58	1.50
13	Denial	421	3.45	1.40
14	Substance abuse	421	2.10	0.62

Descriptive statistics. Minimum score 2 and maximum score 8. Mean score interpretations: 2.00 = have not been doing this at all, 2.01-4.00 = have been doing this a little bit, 4.01-6.00 = have been doing this a medium amount, 6.01-8.00 = have been doing this a lot.

Distressed students tend to use negative coping strategies like denial, behavioral disengagement and self-blame rather than positive ones (Table 4). Factors that contributed to distress among the students were intrapersonal and interpersonal related stressors, academic achievements, level of school and academic related stressor, attention from parent, behavioral disengagement, self-blame and planning coping strategies (Table 5). Students who perceived academic, intrapersonal and the lack of attention from parents as stressful events had higher risk to develop distress

Table 4: 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
Denial	Non-distress	283	< 0.01	3.32	1.26	-0.6727	-0.1045
	Distress	138		**3.71**	1.63	-0.6990	-0.0782
Behavioral disengagement	Non-distress	283	< 0.001	3.18	1.21	-1.4839	-0.9167
	Distress	138		**4.38**	1.71	-1.5196	-0.8810
Focus on and venting of emotion	Non-distress	283	< 0.01	4.59	1.39	-0.6896	-0.1013
	Distress	138		**4.99**	1.54	-0.7009	-0.0899
Planning	Non-distress	283	< 0.01	5.15	1.47	0.1917	0.8008
	Distress	138		**4.65**	1.55	0.1855	0.8070
Acceptance	Non-distress	283	< 0.05	4.78	1.43	-0.6294	-0.0188
	Distress	138		**5.10**	1.63	-0.6440	-0.0041
Self blame	Non-distress	283	< 0.001	3.89	1.40	-1.3640	-0.7462
	Distress	138		**4.94**	1.74	-1.3891	-0.7212

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

Table 5: Factors contributed to distress among secondary school students.

Factor		B	Wald	df	p-value*	Odd ratio	95% CI for odd ratio	
							Lower	Upper
School level	Form 5	reference group						
	Form 4	0.772	7.231	1	0.007	2.164	1.233	3.799
Academic performance	Top 10	reference group						
	Intermediate	-0.235	.555	1	0.456	.791	.427	1.466
	Bottom 10	1.202	5.617	1	0.018	3.326	1.231	8.988
Intrapersonal Related Stressor status	Nil to mild stress	reference group						
	Mild to moderate stress	1.344	4.886	1	0.027	3.836	1.165	12.635
	Moderate to high stress	2.868	7.492	1	0.006	17.604	2.258	137.247
	High to severe stress	5.224	10.557	1	0.001	185.745	7.948	4341.091
Academic Related Stressor score		1.039	12.315	1	0.000	2.827	1.582	5.051
Interpersonal Related Stressor score		-0.391	4.840	1	0.028	.676	.477	.958
Intrapersonal Related Stressor score		-1.268	5.388	1	0.020	.281	.096	.821
Behavioral disengagement		0.389	12.905	1	0.000	1.475	1.193	1.824
Planning		-.271	6.949	1	0.008	.763	.624	.933
Self-blame		0.224	5.519	1	0.019	1.251	1.038	1.508
Attention from parent	Always	reference group						
	Sometime	0.630	4.952	1	0.026	1.878	1.078	3.273
	Never	2.320	8.718	1	0.003	10.181	2.182	47.504
Constant		-3.844	19.712	1	0.000	.021		

*Binary Logistic Regression was applied, $p < 0.05$ was considered as significant at 95% CI.
χ^2 (df) = 125.11 (14), $p < 0.001$, Nagerkerke R^2= 0.403

(Table 5). Those with low academic performance (in the form 4) and used behavioral and self-blame as coping strategies had greater risk to develop distress (Table 5). In contrast, those who used planning as a coping strategy were at lower risk to develop distress (Table 5).

Discussion

The prevalence of distress among secondary school students was 32.8% which is relatively higher compared to the World Health Organization (WHO) expected figure of mental health problems among adolescents population of 20% [28]. This result is a cause of concern and is suggestive that there is a growing pressure on the secondary school students in Kota Bharu, Kelantan higher than the expected levels.

Prevalence of distress among female students was relatively higher compared to male students and this finding is similar to a previous study [29]. A probable reason is the higher concern amongst female students about their academic achievements, as compared to male students. It is worth highlighting that most of the distressed students came from the technical school as the prevalence of distress was the highest amongst them. The very high prevalence is a cause of concern, indicating a disruption to the student's wellbeing. Chronic exposure to distress may lead to various problems such as poor academic performance, poor physical and mental health [2-5].

As per expectations, the major stressor among students across different types of schools was academic-related; providing a consistency with previous similar studies [12,

16, 30-35]. It indicates that the stressor among students is almost similar across school types and curriculum design. In addition, the technical school also had the highest mean scores for intrapersonal, teacher-related, group and social stressors in comparison to the other schools. These stressors may also contribute to the high prevalence of distress among the students.

Coping strategies are defined as "how a person reacts or responds toward a stressor" [25]. Effective and appropriate coping strategies minimize the impact of encountered stressful situations on one's wellbeing. The study found that the top five coping strategies used by the students were religion, positive reinterpretation, use of instrumental support, active coping and planning. Most of these strategies were positive and hastened recovery from distress [8,25,26]. The distressed students tended to use negative coping strategies such as self distraction, denial, behavior disengagement, and self blame. These facts suggest that training students to use coping strategies effectively will be beneficial.

Eight factors contributed to distress: intrapersonal and interpersonal related stressors, academic achievements, level of school, academic-related stressor, attention from parent(s), behavioral disengagement, self-blame and planning coping strategies. Most of these contributing factors to distress were related to school training, the students and the parents. This fact highlights the fact that a healthy perception towards self and academic matters will help in reducing distress. It also suggests two areas for further research. Firstly, the design of a curriculum which optimizes the balance between the 'push' factors (bringing out the best in students and maintaining standards) and inducing unnecessary stress. The second area that has to be addressed is the focus of intervention programs. The facts suggest that training students to have a healthy mindset with positive coping strategies will be beneficial [36-38]. Furthermore, the study also suggests that parents play a very important role in improving the students' wellbeing by providing more attention to them.

This study had several limitations that should be considered in the future investigations. The sample size was not representative of the actual distribution of the study population in terms of school types, as only four schools were selected. Further studies should be conducted in other technical schools to verify this trend and to explore the reasons for distress. The GHQ cut-off point used in this study was based on other population cut-off point which may lead to inaccuracy of the result; it can be lower or higher. Therefore, findings of this study should be interpreted cautiously.

Conclusion

The prevalence of distress among secondary school students in Kota Bharu was high. The major stressor for all types of schools was related to academic factors / issues. Students in the technical school were more distressed compared to others. Positive coping strategies were the most frequently used ones. There were eight factors that contributed to distress which were related to school training, students and parents.

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Authors' Contributions

All the authors contributed in research design, data collection, drafting article and analysis of data.

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Competing Interest

The authors declare that they have no competing interests.

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