Prevalence and Factors Related to Stress among Undergraduate Students in a Northeast Thailand Province

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Abstract

This cross-sectional study aimed to investigate the prevalence of general stress and factors related to general stress in undergraduate students in a northeast Thailand province. Participants were selected using 2-stages random sampling consisting of 257 participants. The stress assessment tool (2-stage developed by the department of mental health, Thailand) was used to evaluate the level of stress and general information was collected. Adjusted Odds Ratio with 95% confidence interval was used to explore the relation between independent variables and stress status.

The results showed that prevalence of stress at above normal, moderate stress and high stress was 31.5 (CI 26.3-37.4), 7.4 (CI 4.3-10.7) and 9.3 (CI 5.6-12.7) respectively, mean stress score was 17.99 (SD 7.56) out of 60. Female had higher prevalence of stress than male at 0.05 level (p=.009). Risk factors for stress were female (aOR 3.23, 95% CI 1.47-7.10, grade point average 3.50 or more(aOR 2.72, 95% CI 1.25-5.90), has 3 siblings or more compared to having 1-2 siblings (aOR 3.03, 95% CI 1.33-6.92) and insufficient money (aOR 2.28, 95% CI 1.14-4.59).

The results suggest that surveillance and stress program should be considered due to the high prevalence and risk groups must be aware and focused on preventing stress especially personal risk factors.

Keywords : stress, factor, student, university, undergraduate

Introduction

Thailand has a population of 67.95 million people in 2015 which increased from 52.04 million over 3 decades.[1] It has been in a socio-demographic and economic transformation, and extended family has emerged rapidly.[2] These changes have been associated with more mental health disorder problem.[2] The major plan from the department of mental health aimed to prevent mental health since 1992.[2] The highest suicide rates during period 1998-2003 was found for young men (aged 25-34 years), and improved after the economic recovery.[3] Recently, from the Thai mental health survey in 2013 found that 4.1% of Bangkok people have thought about suicide over lifetime, and 0.7% have attempted suicide.[4]

Approximately 3.5% of health care expenditures by the government health department is directed toward mental health services.[5] Also, 11% of facility in the country is for children and adolescents only.[5]

In the year 2003, 1.9% of Thai people were suffered from anxiety disorder and about 20% of those people were in moderate levels of stress and 4.1% were in severe level.[6] It was also found that adolescents, especially in students were subject to psychiatric problem more than young children,[7] and half of all lifetime cases of mental illness begin by age 14.[8] As a consequence, childhood maltreatment has been associated with depression,[9] or anxiety disorders,[10] for example.

In terms of the prevalence of stress, many studies found that most of the students had normal to high-stress level. Nursing students were affected by high-stress level[11] while other groups were at moderate or normal level.[12-13] The causes of stress in Thai people were from working, economics, studying, traffic problems and the family problem which led to an increase of suicidal problem.[14] As a result, people in the society have to compete with and meet many problems, especially from work and study. These phenomena make students develop stress both temporarily and permanent. Many factors can contribute to stress in students such as individual factors; economic situation in their family[15], underlying disease or medication they take,[16] health condition,[17-18] love relationship,[17] and housing,[18] university factors; learning system, relationship with peers,[17,19] relationship with friends,[15] academic problems (being major causes in medical students),[17-18] and adjustment.[18]

In northeast of Thailand, there are 18 provinces varied from size and population. Many undergraduate students who study in this region are mostly local people. There are many faculties and disciplines in each university such as science, art, humanities and so on.

Locating in the northern part of the region, the province which the research was conducted had approximately 16,000 undergraduate students in the year 2012.[20] Duringthe study period, some students lived

in the dormitory while some stayed with their families. They spent their time daily at the university and it takes 4 years during the undergraduate courses. As a result, they could be affected by some stress in their entire university lives. This research aimed to explore the prevalence of stress and factors contributed to the stress. The results will be beneficial to estimate the magnitude of problem and can use for intervention program reducing risk factors to improve their quality of life in university.

Materials and Methods

Study design: A cross-sectional study

Subjects: The study population was 15,533 undergraduate students in year 2012[20] in a province consisting of 3 universities in similar areas such as science, agriculture, languages, social sciences, and management. Multi-stage random sampling was used initially with simple random sampling providing one university in a province. Secondly, stratified random sampling was used with the faculties as a unit of sampling. In each 6 faculties, proportional to size was calculated since the research had a number of students in every faculty. Sampling calculation[21] for estimation of proportionon stress status was used with N=15,533[20], p=0.18913, e=0.05 and Z=1.96 resulting 257 samples taken into the study.

Data were collected between July and August 2012 in a university selected. The president of the university was send the letter to ask for a permission for data collection. After that, participants were randomised using simple random sampling and were asked to answer the questionnaire by document information and signed in the form when they would like to participate.

Instruments:

The instrument of this research was a questionnaire containing 2 parts; general information of the samples and stress assessment tool. General information part was constructed by the researchers which consisted of sex, age, study subject, grade point average (GPA), sibling, underlying disease, parental status, residence, and income. The stress assessment tool was constructed by the department of mental health[22], containing 20 items. The scores ranged from 0-60 points and were categorised into 5 levels of stress; lower than normal (0-5 points), normal (6-17 points), above normal (18-25 points), moderate stress (26-29 points), and high stress (30 points or above). Content validity was tested by three experts, the score for each item was greater than 0.5. Reliability test from Cronbach's alpha coefficient for overall items was 0.86 tested in another similar university.

Statistical analysis:

Data were analysed by using descriptive statistics to describe general information of the participants and score of stress using percentage, mean, standard deviation, minimum and maximum with 95% confidence interval. Chi-square test regarding its

assumptions was used to test the difference between gender. Parameter estimation was used to demonstrate the prevalence rate with confidence interval (CI). When analysing for the relation between independent and dependent variables, dependent variable was categorised into two stress levels: stress (above normal, moderate stress, and high stress) and non-stress (lower than normal and normal). Inferential statistics was Odds Ratios (OR) with 95% confident interval (CI) to explore the relationship between general information and stress levels. Enter method was used by entering all independent variables into the final multiple logistic regression model to provide adjusted Odds Ratios.

Results

When analysing the data, there were some missing data in each variable which excluded from the analysis. Demographic information showed that most of the participants were female (74.3%), Age between 20-22 years (76.2%), faculty of management (27.2%), fourth year students (27.6%), GPA of 3.00-3.49 out of 4.0 (44.1%), having 2 siblings (55.5%), no underlying disease or medication (92.5%), parental status was married (77.3%), living in female dormitory (46.3%), income range 3,001-6,000 Baht per month (64.8%), expense range 3,001-6,000 Baht per month (62.2%) and income and expense was sufficient (52.2%) as shown in Table 1.

Table 1 Demographic information of participants (n=257)

General information	No.	Percent
Gender		
Female	191	74.3
Male	66	25.7
Age (n=256)		
18-19 years	47	18.4
20-22 years	195	76.1
23 years and above	14	5.5
Mean=20.85 S.D.=1.33 Min=18 Max=26		
Faculty		
Management	70	27.2
Education	67	26.1
Humanities and Social Sciences	53	20.6
Science and Technology	32	12.5
Industrial Technology	26	10.1
Agricultural Technology	9	3.5

Table 1 Demographic information of participants (n=257)

General information	No.	Percent
Year of study (n=228)		
1st year	60	26.3
2nd year	49	21.5
3rd year	56	24.6
4th year	63	27.6
Grade point average (n=236)		
Less than 2.50	10	4.2
2.50 – 2.99	60	25.4
3.00 – 3.49	104	44.1
3.50 or more	62	26.3
Mean = 3.17 s.d. = 0.41 min = 1.91 max = 3.95		
Siblings (n=256)		
Single	38	14.8
2 siblings	142	55.5
3 siblings	62	24.2
4 or more	14	5.5
Med = 2 min = 1 max = 6		
Underlying disease (n=255)		
No	236	92.5
Yes (Allergy, asthma, Thallasemia, Turner's syndrome etc.)	19	7.5
Parental status (n=256)		
Married	198	77.4
Divorced	24	9.4
Father dead	19	7.4
Mother dead	6	2.3
Separated	9	3.5
Place of Residence(n=255)		
Female dorm	118	46.3
Parents' house	68	26.7
Mixed dorm	39	15.3
Male dorm	20	7.8
Guardian's house	10	3.9

Table 1 Demographic information of participants (n=257)

General information	No.	Percent
Income per month (n=236)		
Less than 3,000 Baht	60	25.4
3,001-6,000 Baht	153	64.9
More than 6,000 Baht	23	9.7
Mean = 4,520.76 s.d. = 1,849.20 min = 1,000 max = 13,000		
Expense per month (n=238)		
Less than 3,000 Baht	55	23.1
3,001-6,000 Baht	148	62.2
More than 6,000 Baht	35	14.7
Mean = 4,642.02 s.d. = 2,002.36 min = 800 max = 15,000		
Sufficient money		
Yes	133	52.2
No	122	47.8

For the prevalence of stress, most of the students were in the normal level of stress (48.2%) followed by above normal (31.5%) while high stress was 9.3%. When considering for gender, it was found that most of male and female were in normal level (62.1 and 43.5 respectively) while least male and female were in lower than normal, 6.1% and 2.6% respectively. Mean stress scores in female was higher than male with significant difference (p=0.009) as shown in table 2.

Table 2 Number and percentage of total participants and gender classified by level of stress

Level of stress	Total(%)	Male(%)	Female(%)
Lower than normal (0-5 points)	9(3.5)	4(6.1)	5(2.6)
Normal (6-17 points)	124(48.3)	41(62.1)	83(43.5)
Above normal (18-25 points)	81(31.5)	14(21.2)	67(35.1)
Moderate stress (26-29 points)	19(7.4)	2(3.0)	17(8.9)
High stress(30 points or more)	24(9.3)	5(7.6)	19(9.9)
Mean(SD)	17.99(7.56)	15.91(7.90)	18.71(7.32)
Min/Max	1/45	1/45	1/40
Total	257	66(100)	191(100)

When analysing the risk factors using crude odds ratio, it was found that gender, year, grade point average, income, expense and sufficient money were associated with stress in undergraduate students with significant difference at 0.05 level as shown in table 3.

Table 3 Crude odds ratio between general information and stress in undergraduate students in a province (n=257)

Variable	Stress		cOR	95% CI	*p-value*
	Yes(%)	No(%)			
Gender					
Female	103(53.9)	88(46.1)	2.51	1.39-4.53	0.002*
Male	21(31.8)	45(68.2)	1		
Age					
18-19 years	17(36.2)	30(63.8)	1.76	0.53-5.89	0.355
20 -22 years	99(50.8)	96(49.2)	0.97	0.33-2.87	0.956
23 years and above	7(50.0)	7(50.0)	1		
Year					
1^{st} year	20(33.3)	40(66.7)	2.20	1.19-4.07	0.012*
2^{nd}-4^{th} year	88(52.4)	80(47.6)	1		
Faculty					
Non-Science	94(49.5)	96(50.5)	1		
Science-related	40(44.8)	37(55.2)	1.21	0.69-2.11	0.51
Grade point average					
Lower than 3.49	92(52.9)	82(47.1)	1		
3.50 or more	21(33.9)	41(66.1)	2.19	1.20-4.01	0.011*
Siblings					
1-2 Siblings	18(47.4)	20(52.6)	1		
3 or more siblings	73(51.4)	69(48.6)	1.41	0.82-2.41	0.22
Underlying disease					
No	111(47.0)	125(53.0)	1		
Yes	12(63.2)	7(36.8)	0.52	0.20-1.36	0.182
Parental status (n=256)					
Married	91(46.0)	107(54.0)	1		
Divorced	14(58.3)	10(41.7)	0.61	0.26-1.43	0.255
Father dead	10(52.6)	9(47.4)	0.76	0.30-1.97	0.578
Mother dead	4(66.7)	2(33.6)	0.42	0.08-2.38	0.330
Separated	5(55.6)	4(44.4)	0.68	0.18-2.61	0.574

Table 3 Crude odds ratio between general information and stress in undergraduate students in a province (n=257)

Variable	Stress		cOR	95% CI	*p-value*
	Yes(%)	No(%)			
Place of Residence					
Parents' or guardian' house	39(50.0)	39(50.0)	1		
Dormitory	85(47.8)	93(52.2)	1.09	0.62-1.86	0.74
Income per month					
Less than 3,000 Baht	24(40.0)	36(60.0)	1.85	0.74-4.62	0.187
3,001-6,000 Baht	77(50.3)	76(49.7)	2.81	1.03-7.66	0.043*
More than 6,000 Baht	15(65.2)	8(34.8)	1		
Expense per month					
Less than 3,000 Baht	20(36.4)	35(63.6)	1.42	0.67-3.01	0.358
3,001-6,000 Baht	76(51.4)	72(48.6)	2.62	1.10-6.27	0.030*
More than 6,000 Baht	21(60.0)	14(40.0)	1		
Sufficient money					
Yes	56(42.1)	77(57.9)	1		
No	68(55.7)	54(44.3)	1.73	1.05-2.84	0.03*

* statistically significant at 0.05 level

When adjusting for all variables, it was found that gender, GPA, siblings and sufficient money were associated with stress with statistically significant level at 0.05 as shown in table 4.

Table 4 Adjusted Odds Ratio for stress status in undergraduate student.

Variable	Stress		aOR	95% CI	*p-value*
	Yes(%)	No(%)			
Gender					
Female	103(53.9)	88(46.1)	3.23	1.47-7.10	0.004*
Male	21(31.8)	45(68.2)	1		
Grade point average					
Lower than 3.49	92(52.9)	82(47.1)	1		
3.50 or more	21(33.9)	41(66.1)	2.72	1.25-5.90	0.11*
Siblings					
1-2 Siblings	18(47.4)	20(52.6)	1		
3 or more siblings	73(51.4)	69(48.6)	3.03	1.33-6.92	0.008*

Table 4 Adjusted Odds Ratio for stress status in undergraduate student.

Variable	Stress		aOR	95% CI	*p-value*
	Yes(%)	No(%)			
Sufficient money					
No	68(55.7)	54(44.3)	2.28	1.14-4.59	0.02*
Yes	56(42.1)	77(57.9)	1		

Note: adjusted for gender, age, year of study, faculty, underlying disease, GPA, sibling, parental status, residence, sufficient money, income and expense.

* statistically significant at 0.05 level

Discussion and conclusion

From this recent study, the levels of the stress in undergraduate students were categorised into 5 levels regarding original classification which was lower than normal, normal, above normal, moderate stress and high stress. The result showed that the prevalence of stress in undergraduate students (when defined higher than normal) was 49.3% with mean stress score of 17.99 (out of 60). Most of stress students were female, came from the faculty of Agricultural Technology or Science and Technology than others, were in the second to the fourth year, and GPA between 3.00-3.49. This study's prevalence was quite similar to other studies; 39% had high stress in undergraduate students[23], similar in term of normal level in Thai traditional medicine students (47.5%),[13] in Ubonratchathani university undergraduate students[24] or 34.1% in master students.25This result might cause by the transition study from high school or hometown to a university environment which is different to home's life. However, a huge different is shown when compared to health related subjects. For instance, in pharmacy students (5.8%)[26] or nursing and public health students (approximately 25%).[27] To conclude, even the prevalence was similar to many studies, however, there was a varieties of subjects they stated that could not summarise the main group of stress from this descriptive result.

When considering gender, stress in male was 31.8% and female was 53.9%, female was higher than male with a significant level at 0.05 and which is similar to another study conducted in first-year students.[28] The possible causes female being higher than male in many universities would be from the hormone or stress coping characters.[11,23]

For the factors related to stress in undergraduate students when adjusted for all variables, the main risk factors can be divided into personal factors which were female, has 3 siblings or more compared to 1-2 siblings, insufficient money. Secondly,

educational factor washaving GPA 3.50 or more. These findings were similar in term of economic situation,15or competency to study.[23]

The point was that main focus on prevention should be done in both personal factors and educational factordue to quite similar OR which were similar to other studies showed that underlying disease, residence, income and expense, and health conditions were risk factors contributing stress.[16,18, 23,28]

On the otherhand, educational factor, only grade point average was a significant factor to have stress. Faculty variable did not show any differences in this study, this finding was similar to another study that faculty was not a risk factor for stress as being the first-year students.[28] However, regardless the year of study, differences in other studies that humanities and social sciences students had higher score of stress than science students[29], and science students had more stress than arts and education students.[23-24]

In conclusion, this study showed high prevalence of stress in the undergraduate students which should be implemented for prevention program. Mainly, target groups need to be focused on personal risk factors, then universities should advocate activities to reduce stress level in the university environments such as providing more recreation activities, especially in the risk groups such as female,students who do not have enough money to live. Moreover, students who have higherGPA should be monitored, and provide also more relaxed time.

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