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Mental health status of Khon Kaen University students

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Abstract

To screen for mental health and depression status among Khon Kaen University (KKU) students, a simple random sampling was used to obtain 312 students from 26,294 students in 17 faculties in the academic year 2010. A self-administered questionnaire containing independent variables, THMI-15 (Thai Mental Health Indicator), and PQH-2 (Patient Health Questionnaire) was used. The study found that KKU students had average mental health status in normal range with 15% (95%CI: 11.3, 19.5) in poor mental health and 21.5% (95%CI: 17.1, 26.5) in probable major depression. Depression in females (23.0%) was higher than in males (19.2%). The Art and Social group had the lowest mental health and the highest depression status. Failed parent's marriage, insecure father's occupation, inadequate monthly allowance, and study subject not the student's own choice were significant factors for poor mental health, whereas, the higher study year, insecure mother's occupation, and inadequate monthly allowance were significant factors for depression. Since inadequate monthly allowance was a common factor to both poor mental health and depression, researchers advise that university authorities pay closest attention to this factor in particular. Those students having problems should be identified early by responsible staff, starting during enrollment, to prevent the risk of adverse consequences to the youths.

Keywords: mental health, depression, KKU students, northeast Thailand

1. Introduction

Mental health research is important for policy-makers to develop strategies for a better mental health of the population. In 2010, political mayhems overwhelmed our country. It seemed to affect almost everyone more or less, directly or indirectly, inevitably. This undoubtedly caused some stress to the population. People of every age can face stress, but might express it in different ways. When in stressful situations, adults might be able to cope better, while in children, it might be harder. Therefore, it was our interest to conduct a study to screen for KKU (Khon Kaen University) students' mental health status within the situation, during August 2010. It was expected to be a useful guide for university authorities to develop measures for a better mental health of students.

2. Methodology

A cross-sectional descriptive study was conducted after receiving ethic's approval for research in human subjects from the KKU Ethic Committee. KKU students were randomly approached. With verbal consent, students were asked to self-administer the questionnaires. The KKU student population (26,294) was divided into 3 study groups, i.e., 'Science and Technology' group, 'Health Science' group, 'Art and Social' group. Faculties of Medicine, Dentistry, Pharmacy, Veterinary, Associated Medical Sciences, Nursing, and Public Health were in the 'Health Science' group, comprising 5,469 students. Faculties of Science, Agriculture, Technology, Engineering, and Architecture were in the 'Science and Technology' group, comprising 10,250 students. Faculties of Fine and Applied Arts, Science of Management, Humanities and Social Sciences, Education, and Laws were in the 'Art and Social' group, comprising 10,575 students.

2.1 Sample size calculation

$$n = \frac{Z_{\alpha/2}^{\ 2} P(1-P)}{d^2}$$

where P=0.246 (From Mongkol et al., 2009(1), 24.6% of Thai people had low mental health), d = 0.0492 (acceptable error =20%), $Z_{\alpha/2} = 1.96$. n = (1.96^2 x 0.246 x 0.754)/0.0492 = 294.

In this study, we expected to recruit approximately 300 students.

Sample size for each study group =

((300 x number of total students in each study group)/total KKU student population)

Sample size for each sub-study group (study year or faculty) = ((300 x number of total students in the subgroup)/total KKU student population).

2.2 Study instruments

The questionnaires comprised 3 parts

(1) General and related independent variables, 13 items.

(2) THMI-15 (Thai Mental Health Indicator), 15 items, 4 choice levels of answer, i.e., 1-4 (2).

Calculation and interpretation for THMI scores:

Scores were given for levels of agreement to questions: items numbers 1, 2, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 for answers 'disagree' (ไม่เลย) =1, 'partly agree' (เล็กน้อย) =2, 'mostly agree' (มาก) =3, and 'totally agree' (มากที่สุด) =4; items number 3, 4 and 5, for answers 'disagree' (ไม่เลย) =4, 'partly agree' (เล็กน้อย) =3, 'mostly agree' (มาก) =2, and 'totally agree' (มากที่สุด) =1.

Interpretation for THMI scores: ≤ 43 = poor mental health, 44-50 = fair mental health, 51-60 = good mental health.

(3) PHQ-2 (Patient Health Questionnaire), 2 items, 4 choice levels of answer, i.e., 0-3 (3, 4)

Calculation and interpretation for PHQ scores:

Scores were given to both items (1 and 2) for answers 'never' (ไม่เลย) =0, 'seldom' (มีบางวัน ไม่บ่อย) =1, 'sometimes' (ค่อนข้างบ่อย) =2, and, 'frequently' (มีเกือบทุกวัน) =3

Interpretation for PHQ: <3 = no probable major depression, ≥ 3 = probable major depression.

2.3 Study procedure

Researcher (student researcher) randomly arrived at selected faculties at random occasions, randomly approached students and asked for their study faculty and year. If criteria were met, students were asked to join the research by giving research instructions to read. If they agreed (all students approached agreed), the respondents self-administered the questionnaires. After they finished, the respondents folded up the questionnaires and put them into a questionnaire-box carried by the researcher.

Stata 10 (StataCorp, College Station, TX statistical analysis software) was used for univariate and multivariate analysis for correlations and risk estimates.

3. Results

3.1 Descriptive results

Characteristics of study samples presented by the actual numbers of samples in each study group, study year, and gender are shown in Table 1. Classification of mental health status and depression status of the study samples according to the criteria are shown in Table 2, and comparison of mental health status and depression status of the study samples by study group, study year and gender in Table 3. The study found that on average, KKU students had fair mental health (THMI 47.95±5.04) and not in major depression (PHQ 1.98±1.25). However, 15% of KKU students were in poor mental health and 21.5% were having probable major depression.

3.2 Factors associated with mental health and depression

When testing for correlation between THMI and PHQ scores, a moderate negative correlation was found with Pearson's r value = -0.435 (95%CI -0.520, -0.320), p <0.001. This meant that there was some negative correlation between mental health scores and depression scores in KKU students, and that students who had poor mental health (low THMI scores) may have had major depression (high PHQ scores).

Results from univariate analysis revealed that a failed parent's marriage status (p=0.002), certain types of father's occupation (p=0.013), inadequate monthly allowance (p=0.002), study subject being not the student's own choice (p=0.034), and low grade point average (p=0.008) were factors significantly associated with student's poor mental health, whereas higher study year (p=0.028), failed parent's marriage (p=0.020), certain types of father's and mother's occupation (both p=0.020), and inadequate monthly allowance (p=0.003) were shown as significant factors of depression. These results are shown in Table 4.

When multivariate analysis was applied, failed parent's marriage, certain types of father's occupation, inadequate monthly allowance, and study subjects being not the student's own choice, were found as significant factors for poor mental health (Table 5), whereas higher study year, certain types of mother's occupation, and inadequate monthly allowance were significant factors for depression (Table 6).

Table 1. Characteristics of study samples presented by the actual numbers of samples in each study group, study year, and gender.

Study groups	Total	Year1	Year2	Year3	Year4+	Male	Female
Health Science	**79**	15	16	15	33	27	52
Science and Technology	**114**	26	28	29	31	70	44
Art and social	**119**	32	29	27	31	28	91
Total	**312**	**73**	**73**	**71**	**95**	**125**	187

Table 2. Classification of mental health status and depression status of the study samples according to criteria.

	Mental health status				Depression status		
	N	%	95% CI		N	%	95%CI
Poor	47	15.1	11.28, 19.52	Yes	67	21.5	17.05, 26.45
Fair	175	56.1	50.39, 61.68	No	245	78.5	73.55, 82.95
Good	90	28.9	23.88, 34.22				

Table 3. Comparison of mental health status and depression status of the study samples as classified by study groups, genders and study years.

	Mental health status			**Depression status**	
	Poor	**Fair**	**Good**	**No**	**Yes**
	N (%)	**N (%)**	**N (%)**	**N (%)**	**N (%)**
Study groups					
Health Science(N=79)	9(11.4)	45(57.0)	25(31.7)	65(82.3)	14(17.7)
Science & Technology (N=114)	16(14.0)	61(53.5)	37(32.5)	96(84.2)	18(15.8)
Art & Social(N=119)	22(18.5)	69(58.0)	28(23.5)	84(70.6)	35(29.4)
Gender					
Female(N=187)	26(13.9)	113(60.4)	48(25.7)	144(77.0)	43(23.0)
Male(N=125)	21(16.8)	62(49.6)	42(33.6)	101(80.8)	24(19.2)
Study Year					
Year 1(N=73)	7(9.6)	38(52.1)	28(38.4)	65(89.0)	8(11.0)
Year 2(N=73)	13(17.8)	44(60.3)	16(21.9)	51(69.9)	22(30.1)
Year 3(N=71)	11(15.5)	44(62.0)	16(22.5)	57(80.3)	14(19.7)
Year 4+(N=95)	16(16.8)	49(51.6)	30(31.6)	72(75.8)	23(24.2)
Total(N=312)	47(15.1)	175(56.1)	90(28.9)	245(78.5)	67(21.5)

Table 4. Results from univariate analysis. Crude ORs with 95% CI of each study factor are shown.

	Mental health status			Depression status		
	Poor N (%)	Normal N (%)	Crude OR (95%CI)	Yes N (%)	No N (%)	Crude OR (95%CI)
Total(N=312)	47(15.1)	175(56.1)		67(21.5)	245(78.5)	
Study groups						
Health Science	9(11.4)	70(88.6)	1	14(17.7)	65(82.3)	1
(N=79)			-			-
Science&Technology	16(14.0)	98(86.0)	1.27(0.53,3.04)	18(15.8)	96(84.2)	0.87(0.40,1.87)
(N=114)						
Art & Social(N=119)	22(18.5)	97(81.5)	1.76(0.77,4.06)	35(29.4)	84(70.6)	1.93(0.96,3.89)
Gender						
Female(N=187)	26(13.9)	161(86.1)	1	43(23.0)	144(77.0)	1
Male(N=125)	21(16.8)	104(83.2)	1.25(0.67,2.34)	24(19.2)	101(80.8)	0.80(0.45,1.39)
Study Year						
Year 1(N=73)	7(9.6)	66(90.4)	1	8(11.0)	65(89.0)	1
Year 2(N=73)	13(17.8)	60(82.2)	2.04(0.76,5.46)	22(30.1)	51(69.9)	3.50(1.44,8.52)
Year 3(N=71)	11(15.5)	60(84.5)	1.73(0.63,4.75)	14(19.7)	57(80.3)	2.00(0.78,5.10)
Year 4+(N=95)	16(16.8)	79(83.2)	1.91(0.74,4.92)	23(24.2)	72(75.8)	2.60(1.09,6.20)
Hometown						
KhonKaen(N=71)	8(11.3)	63(88.7)	1	17(23.9)	54(76.1)	1
Northeast(N=178)	31(17.4)	147(82.6)	1.66(0.72,3.81)	35(19.7)	143(80.3)	0.78(0.40,1.50)
Others(N=62)	8(12.9)	54(87.1)	1.17(0.41,3.32)	14(22.6)	48(77.4)	0.93(0.41,2.08)
Parent's marriage status						
Complete(N=259)	31(12.0)	228(88.0)	1	49(18.9)	210(81.1)	1
Failed(N=53)	16(30.2)	37(69.8)	3.18(1.59,6.38)	18(34.0)	35(66.0)	2.20(1.15,4.21)
Father's occupation*						
1 (N=138)	13(9.4)	125(90.6)	1	24(17.4)	114(82.6)	1
2 (N=127)	22(17.3)	105(82.7)	2.01(0.97,4.19)	25(19.7)	102(80.3)	1.16(0.63,2.17)
3 (N=39)	11(28.2)	28(71.8)	3.78(1.53,9.30)	15(38.5)	24(61.5)	2.97(1.36,6.48)
Mother's occupation*						
1 (N=112)	14(12.5)	98(87.5)	1	15(13.4)	97(86.6)	1

Table 4. Results from univariate analysis. Crude ORs with 95% CI of each study factor are shown. (Cont.)

	Mental health status			Depression status		
	Poor N (%)	Normal N (%)	Crude OR (95%CI)	Yes N (%)	No N (%)	Crude OR (95%CI)
2 (N=131)	20(15.3)	111(84.7)	1.26	33(25.2)	98(74.8)	2.18
3 (N=62)	12(19.4)	50(80.6)	1.68	19(30.6)	43(69.4)	2.86
Monthly allowance						
adequate(N=142)	12(8.4)	130(91.6)	1	20(14.1)	122(85.9)	1
inadequate(N=170)	35(20.6)	135(79.4)	2.81(1.40,5.65)	47(27.6)	123(72.4)	2.33(1.30,4.16)
Health status						
Healthy(N=293)	43(14.7)	250(85.3)	1	61(20.8)	232(79.2)	1
Not(N=19)	4(21.0)	15(79.0)	1.55(0.49,4.89)	6(31.6)	13(68.4)	1.76(0.64,4.81)
Study subjects						
Own choice(N=299)	42(14.0)	257(86.0)	1	63(21.1)	236(78.9)	1
Not own choice(N=13)	5(38.5)	8(61.5)	3.82(1.19,12.25)	4(30.8)	9(69.2)	1.66(0.50,5.58)
Grade Point Average						
<2.00(N=19)	6(31.6)	13(68.4)	2.84(1.02,7.88)	5(26.3)	14(73.7)	1.33(0.46,3.84)
2.00+(N=293)	41(14.0)	252(86.0)	1	62(21.2)	231(78.8)	1

*Father's and mother's occupations : 1=government officials, state enterprise; 2=self-owned business, farmer; 3=private sector, daily waged, housewife or unemployed.

Table 5. Results from multivariate analysis presenting associated factors of poor mental health status with adjusted OR and 95%CI.

	Adjusted OR	95%CI
Parent's marriage status		
Complete	1	-
Failed	2.87	1.33,6.20
Father's occupation*		
1	1	-
2	2.03	0.95,4.33
3	3.17	1.22,8.24
Monthly allowance		
Adequate	1	-
Inadequate	2.62	1.26,5.46
Study subjects		
Own choice	1	-
Not own choice	4.27	1.13,16.22

*Father's occupations : 1=government officials, state enterprise; 2=self-owned business, farmer; 3=private sector, daily waged, unemployed.

Table 6. Results from multivariate analysis presenting associated factors of depression status with adjusted OR and 95%CI

	Adjusted OR	95%CI
Study Year		
Year 1	1	-
Year 2	2.74	1.09,6.89
Year 3	2.10	0.79,5.62
Year 4+	2.50	1.01,6.20
Father's occupation*		
1	1	-
2	0.73	0.32,1.67
3	2.21	0.90,5.46
Mother's occupation*		
1	1	-
2	2.59	1.06,6.35
3	1.95	0.80,4.75
Monthly allowance		
adequate	1	-
inadequate	1.84	0.99,3.41

*Father's and mother's occupations : 1=government officials, state enterprise; 2=self-owned business, farmer; 3=private sector, daily waged, housewife or unemployed.

4. Discussion

In 2010, Thailand faced political crisis. The situation had divided people in most economic and social classes into different color-shirted groups. During April-May 2010, political mayhem and violence had overwhelmed the nation with social media networks and all mass media broadcasting the situation days and nights. Most of the population in the country, if not all, were inevitably affected by the chaotic environment since these political conflicts dissipated deep into even all remote areas. It has been known that many cumulative problems had occurred in Thai society for a long time. This situation undoubtedly caused at least some additional stress to the population. However, this study avoided including political factors in the questionnaires since they were considered as too sensitive and inappropriate during the study period (August 2010). Hence only the mental health status and depression status were expected to be evaluated.

In our analysis, students of the 4th, 5th, 6th years were summed up and analysed as one study year group since these samples were all senior students and small sample sizes. The 5th and 6th year students were predominated in the Health Science group. The 5th year students in the Faculty of Education (Art and Social group) were missed out from this study since during the data collection period they were out of the campus for a practice course. These missing samples (expected n=4) however comprised only 1.28% of the total study samples and 4.2% of the expected total senior students, and thus, should not significantly affect the overall study results.

Our study found that 15% of KKU students were classified with poor mental health (THMI ≤43). This proportion was slightly lower than that of Chamrasrittirong *et al.*, 2010(5) who reported that 17.4% of overall Thai adults, 17.7% of overall Thai youths (15-24 years) and 18.8% of adults in the northeast were having poor mental health. This finding contradicted our

expectation to find a lower poor mental health since our study was conducted shortly after the political crisis. The finding that 11.4% of the health science students were having poor mental health in our study was also slightly lower than that of Rakhajeekul and Krisanaprakornkit, 2008(6) who reported that 13% of medical students in KKU had lower than normal mental health. Our study tools and Chamrasrittirong *et al.,* 2010(5) used the same study tools of THMI (i.e., THMI-15), and similar to Rakhajeekul and Krisanaprakornkit, 2008(6) who used the full THMI (THMI-54). However, our finding of poor mental health was much lower than those found by Mahathirunkul *et al.*, 1997-1998(7) who reported 30% of adults surveyed were at poor mental health and Mongkol *et al.,* 2009(2) who reported 24.6% of Thai people having low mental health. Despite the same study tools used in our study and Mongkol *et al.*, 2009(2), different findings were found. This may be due to the different study populations and time surveyed. KKU is located in the center of northeast region, and the majority of KKU students (80.8%) came from the northeast. Our findings meant that the range of mental health status among the youths in the northeast remained relatively steady or even better over these few years and was not affected by the nation-wide political conflicts, Unofficial information from a seminar within KKU said that recent surveys among KKU's graduates' parents specified that living and studying in KKU campus was a pleasant atmosphere to students, compared to universities in Bangkok. This could be additional explanation to the finding of a lower proportion of poor mental health in this study.

For depression scores, it was found that 21.5% of KKU students were having probable major depression with the biggest proportion of depression found in the Art and Social group (29.4%). Overall, depression was found to be 23.0% in females, 19.2% in males. These proportions of depression in KKU students were higher than that reported by Boonyamalik *et al.*, 2006(8) who surveyed senior high school and vocational college students across Thailand, and reported that 16.4% of students had clinically significant depression and that the highest prevalence of depression was found among students in Bangkok; 19.0% in girls and 13.7% in boys were having depression. The lower proportion of depression found in Boonyamalik *et al.* (8) could be due to the different sensitivity and depression classification detected by the study tools used, CES-D (Center for Epidemiological Studies Depression Scale), Thai version. Our study used PHQ-2 (Patient Health Questionnaire). Our study tool was expected to be used as a quick preliminary screening tool. It should be expected to be less sensitive in detecting clinical depression. A more sensitive tool should be followed to confirmed. However, the higher depression rate found in our study could be due to the lower economic status of people in the northeast region, the poorest region of the country. Economic problems are always found to be associated with depression in people. In our study, student's inadequate monthly allowance was confirmed as a statistically significant factor to both poor mental health and depression. This may have also explained the higher proportion of depression found among students of the Art and Social group in this study. It has been known that on average, students in the Art and Social group have more severe economic problems. This has been commonly noted by the university's authorities. Although inadequate monthly allowance was a rather subjective term, since students who were having relatively high allowance could have specified as having inadequate monthly allowance. These cases were not found in the Art and Social group, but were in the Health Science group whose allowance specified were much higher. Certain types of parents' occupations with significant association to

mental health and depression could also be explained similarly. Since government officials and state enterprises were considered more secure occupations during the study time in Thailand, they had given better mental health to the youths. Lower grade point average (GPA) of students was found to significantly affect the mental health, but insignificantly affecting the depression status. This could be because the grade point average is a relatively short term factor (temporary factor). It could be that the mental health status was a more quickly affected outcome. If the low grade point average remained for longer, the depression status could have been affected. However, this study could not confirm this explanation.

5. Conclusion

KKU students had average mental health status with the normal range. However, the students in the Art and Social group had the lowest average mental health scores and the highest depression scores. For the mental health status (THMI), it was found that if the parent's marriage status was failed, father's occupation was not secure, student's monthly allowance was inadequate, or the study subject was not the student's own choice, the students' mental health was most significantly affected. For depression status (PHQ), the higher study year, insecure mother's occupation and inadequate monthly allowance were the most significant affecting factors. Although the findings of these problems were rather predictable, this study confirmed that these problems truly existed and were awaiting to be solved. Those students having problems should be identified early by responsible staff of the university, or by concerned persons. If possible, there should be a regular monitoring system to screen for these associated factors to evaluate the risk of poor mental health for all students, starting during university's enrollment. Since inadequate monthly allowance was a common factor to both mental health and depression status, we advise that university authorities pay closest attention to this factor in particular. In Thailand, currently all state universities are in the mode of transforming into self-autonomous universities. It has been extensively discussed for years, as tuition fees would become a more serious factor affecting students and parents. KKU is in the northeast region, the poorest region as stated earlier, and the majority of students enrolled are from local areas. Economic problems should be of even more concern.

Therefore, in order to prevent the risk of adverse consequences to the youths who would otherwise be the future valuable human resource of the nation, we advise that these associated risk factors should be evaluated closely.

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