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DEPRESSION AND SUICIDAL IDEATION AMONG SECONDARY SCHOOL STUDENTS IN CAN THO CITY: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: There is a rapidly growing public awareness of depression and suicide, among pupils at Vietnamese secondary schools. This study aims to determine the prevalence of depression, and suicidal ideation; and identify risk factors related to depression. Methods: A cross-sectional study was conducted among 1161 secondary students during September-December 2011. A structured questionnaire was use to assess depression, and suicidal ideation. Results: The prevalence estimates of symptoms reaching a threshold comparable to a diagnosis of depression were 41.1%. Suicide had been seriously considered by 26.3% of the students, 12.9% had made a suicide plan while 3.8% had attempted suicide. Major risk factors related to depression were physical or emotional abuse by the family and high educational stress. Conclusions: Depression and suicidal ideation are common among secondary school students. They have strong significant associations with physical or emotional abuse in the family and high educational stress.

Keywords: Mental health, Depression, Suicide, Adolescents, Student, Can Tho

I. INTRODUCTION

Mental health disorders are among the most important public health issues globally. Estimates of the global burden of disease place mental illness in the top three of diseases in terms of years lost due to disability [1]. The mental health of adolescents and young people is a crucial issue because of the general burden of mental illness and

because mental illness has the potential to affect the rest of their adult lives and the future lives of the next generation [2] The mental health problems that adolescents and young people encounter interfere with the way they think, feel, and act. Such problems cause distress and limit young people's academic achievements and ability to be economically productive. They can also lead to family conflicts, substance abuse, violence, eating disorders and, sometimes, even suicide. Mental health problems are also expensive for families, communities, and the health and social systems as a whole [3].

There has been a rapidly growing public awareness of depression and suicide among Vietnamese students [4]. In the *Bulletin of the World Health Organization* 2006, Harpham and Tran reported that a fifth of young Vietnamese people experience mental health problems [5] A cross-sectional study of 972 secondary school students (13 to 16 years old) in the north of Vietnam showed that a high proportion of students had poor mental health with 17.6% of adolescents having felt sad and hopeless every day for two weeks during the past 12 months [6]. In addition, the number of students that had considered suicide was high, with 6.6% of students having seriously considered suicide during the past 12 months, 1.2% having made a suicide plan, and 0.4% having attempted suicide [7] Three recent studies conducted among 2591 adolescents (2006) in Hanoi City [8], approximately 1000 adolescents (2007) in Hanoi [6], and among 410 university students (2009) in Ho Chi Minh City [9] also revealed that the prevalence of suicide ideation ranged from 9.2-10.6%. Another study of 1226 secondary school students conducted in Ho Chi Minh City indicated that the percentages of students that had seriously considered a suicide attempt, planned to commit suicide or actually attempted suicide during the past 12 months was 6.3%, 4.6% and 5.8% respectively [10]. In addition, the prevalence of depression was 26.3%. Thai's study demonstrated the high prevalence of depression and educational stress amongst adolescents, as well as the strong association between educational stress and poor mental health. However, risk factors for depression, and students' perspectives on how to reduce depression, have not been investigated.

Although depression among students is prevalent disorders, very few studies have examined the prevalence of depression, their related factors, and solutions to reduce them. Therefore, the aim of this research was to determine the prevalence of depression, to identify risk factors related to their symptoms, and suicide ideation in secondary students in Can Tho City.

II. METHODS

2.1. Study design and population

A cross-sectional study design was applied. All data were collected during the first academic semester (September to December, 2011). The population was purposively selected from the three secondary schools in urban and suburban areas, comprising specialized and general secondary schools. In each school, three classes, one from each grade from 10 to 12, were chosen randomly. In total, 1260 students were invited to participate in the study by sending them an anonymous self-reporting questionnaire. No

exclusion criteria, such as demographic and/or socioeconomic characteristics, were applied. However, of the 1260 students, 99 (7.85%) were excluded from our analysis due to insufficiently complete responses.

2.2. Data collection

Self-completed questionnaires were distributed to all participants, who were requested to complete the questionnaire anonymously after class or at home to minimize potential sharing while filling in the forms and to keep information confidential. The questionnaire consisted of 3 components: (1) demographic information; (2) the Center for Epidemiology Studies Depression Scale – CES-D; and (3) questions on suicide

The CES-D Scale consists of 20 calibrated items. Items are scored either 0-3 or 3-0, with a range of total scores from 0-60; a higher score indicating a higher level of depression. This scale has been validated in Vietnam using confirmatory factor analysis [11]. The standard cut-off score of 16 was used to detect possible cases of depression [12]. For comparison with other studies, two other cut-off points were also used: scores over 21 (for depressive symptoms) and over 25 (for depression) [13].

In order to address the issue of suicide, additional questions about ever having seriously considered suicide and the making of a suicide plan consisted of a scale ranging from never, sometimes and often. A yes/no question was also used to identify students who had attempted suicide.

2.3. Statistical analysis

Data are presented as means ± standard deviation (SD) and analyzed descriptively to determine the demographic and basic characteristics of the study population. The Chi squared test (χ^2) was used to assess the significance of differences in the distribution of selected socio-demographic characteristics, risk factors, and outcome variables among the participants. In addition to the descriptive analyses, logistic regression analysis was performed to identify associations between depression and family characteristics, educational stress, and academic achievement. Univariate independent predictors of depression (including growing up and living with biological parents, living with a mentally ill person, being physically or emotionally abused by adults in the household, study results from the previous semester, often having a serious quarrel with teachers in school, being physically or emotionally abused by teachers or other staffs at school) with $p<0.10$ were entered in a multivariate logistic regression model, applying the Backward Wald method to study their influence on the presence of anxiety and depression. All tests were 2-tailed and a p-value <0.05 was considered statistically significant. The 95% confidence intervals of Odds Ratios (OR) were also calculated.

III. RESULTS

The research population consisted of 1159 secondary school students including 424 (36.5%) boys and 737 (63.5%) girls, ranging in age from 15-19 years (overall mean age 16.1 years). The difference in the number of girls and boys reflects the actual situation

in the classes selected. The number of students for each grade from 10 to 12 was equal among the three grades, with a response rate of about 33% (grade 10: 33.5%, grade 11: 33.9%, and grade 12: 32.6%). The majority of students (95.3%) were ethnically Kinh (ethnic majority in Vietnam); other ethnic groups included Chinese and Khmer.

3.1. Depression among secondary school students in Can Tho city

Scores on the 20-item CES-D Scale during the past week ranged from 0-55, with a mean score (±SD) of 15.7 (±10.5). Among the total sample, the prevalence of being in a 'category at risk for clinical depression' (a CES-D score of ≥ 16) was approximately 41.1%. In comparison with other studies, two other cut-off points were also used: scores over 21 (for an elevated level of depressive symptoms) and over 25 (for a level of depressive symptoms comparable with major depressive disorder) [13]. According to these cut-off points, approximately one fourth (25.9%) of the students were classified as having an elevated level of depressive symptoms, while 18.7% demonstrated a level of depressive symptoms comparable with major depressive disorder. The results also suggested that female students had a significantly higher level of depressive symptoms comparable with major depressive disorder and an elevated level of depressive symptoms (Table 1).

Table 1: Prevalence of depression among secondary school students

	Total N (%)	Females N (%)	Males N (%)	OR (95% CI)	p
Risk of depression (CES-D score of ≥ 16)					
Yes	476 (41.1)	324 (44.1)	152 (35.9)	1.41 (1.10-1.80)	<0.007
No	682 (58.9)	411 (55.9)	271 (64.1)	-	-
Depressive symptoms (CES-D score of > 21)					
Yes	300 (25.9)	209 (28.4)	91 (21.5)	1.45 (1.09-1.92)	0.010
No	858 (74.1)	526 (71.6)	332 (78.5)	-	-
Depression (CES-D score of >25)					
Yes	216 (18.7)	151 (20.5)	65 (15.4)	1.42 (1.04-1.96)	0.029
No	942 (81.3)	584 (79.5)	358 (84.6)	-	-

3.2. Risk factors associated with risk of depression among secondary school students

Logistic regression was also used to explore the relation between depression and risk factors. The standard cut-off score of 16 in CES-D was used to identify possible cases of depression. Based on univariate logistic regression analysis, 12 variables significantly increased the risk of depression, while one variable (having a personal tutor) significantly decreased the risk of depression (Table 2). Students were likely to show higher depressive symptoms when they were not living with both biological parents, living with alcohol or drug abusers, living with a mentally ill person, being physically or emotionally abused at home or at school, and often having serious quarrels with teachers or other staff members at school. Those with poor academic performance and high educational stress also showed

more depressive symptoms. In contrast, having personal tutors reduced the likelihood of having depressive symptoms by 28%.

In multivariable logistic regression analysis, not accounting for effect modification, nine variables still remained associated with possible depression. Study results that were considerably below average and high educational stress were the two strongest characteristics that increased the risk of depressive symptoms (odds ratios were 3.95 and 5.02, respectively). A personal tutor remained a protective factor for depression (reduced the odds by 34% when compared with students who had no personal tutor) (Table 2).

Table 2: Risk factors for possible case of depression

Characteristics	Depression		Univariate logistic regression		Multivariate logistic regression	
	Yes n (%)	**No** n (%)	*OR (95% CI)*	*p*	*OR (95% CI)*	*p*
Growing up and living with both natural parents (n=1158)						
Yes	430 (40.0)	645 (60.0)	-	-	-	-
No	46 (55.4)	37 (44.6)	1.86 (1.19-2.92)	0.007	1.88 (1.13-3.13)	0.015
Living with a substance abuser (n=1154)						
No	373 (38.5)	597 (61.5)	-	-	-	-
Yes	101 (54.9)	83 (45.1)	1.94 (1.42-2.68)	<0.001	1.63 (1.13-2.34)	0.008
Living with a depressed or mentally ill person (n=1154)						
No	442 (40.2)	657 (59.8)	-	-	-	-
Yes	32 (58.2)	23 (41.8)	2.07 (1.19-3.58)	0.008	1.93 (1.03-3.61)	0.041
Being abused by parents or other adults in the household (n=1155)						
No	405 (38.8)	640 (60.2)	-	-	-	-
Yes	70 (63.6)	40 (36.4)	2.76 (1.84-4.16)	<0.001	1.80 (1.23-2.88)	0.014
Academic performance from the last						

Characteristics	Depression		Univariate logistic regression		Multivariate logistic regression	
	Yes n (%)	**No** n (%)	*OR (95% CI)*	*p*	*OR (95% CI)*	*p*
semester (n=1138)						
Excellent/good	77 (33.6)	152 (66.4)	-	-	-	-
Fairly Good/average	350 (40.8)	508 (59.2)	1.36 (1.00-1.85)	0.046	1.25 (0.89-1.76)	0.192
Below average/ Very poor	39 (76.5)	12 (23.5)	6.42 (3.18-12.95)	<0.001	3.95 (1.83-8.56)	0.001
Academic stress (n=1151)						
Low stress	86 (25.7)	248 (74.3)	-	-	-	-
Medium stress	129 (32.9)	263 (67.1)	1.41 (1.02-1.95)	0.036	1.59 (1.12-2.25)	0.009
High stress	259 (60.9)	166 (39.1)	4.50 (3.29-6.15)	<0.001	5.02 (3.57-7.07)	<0.001
Having personal tutors (n=1151)						
No	103 (47.7)	113 (52.3)	-	-	-	-
Yes	370 (39.6)	565 (60.4)	0.72 (0.53-0.97)	0.043	0.66 (0.47-0.92)	0.014
Serious quarrel with teachers or other staffs at school in the past 12 months (n=1155)						
Never	367 (38.1)	597 (61.9)	-	-	-	-
Sometimes/often	107 (56.0)	84 (44.0)	2.07 (1.51-2.84)	<0.001	1.92 (1.35-2.75)	<0.001
It is acceptable for students to have premarital sex (n=1151)						
No	394 (38.8)	622 (61.2)	-	-	-	-
Yes	80 (59.3)	55 (40.7)	2.30 (1.59-3.31)	<0.001	2.12 (1.40-3.20)	<0.001
Total	476 (41.1)	682 (58.9)				

3.3. The rate of suicide among secondary school students

About one fifth of the students had seriously considered attempting suicide (24.7% indicated sometimes and 1.6% indicated often) and about one eighth (12% sometimes and

0.9% often) had made a suicide plan at some time in their lifetime. Forty-four (3.8%) of the 1144 students participating in the study had actually attempted suicide at least once.

IV. DISCUSSION

This study demonstrated that according to their own responses to standard questionnaires, nearly two fifths (41.1%) at risk of depression. Female students reported a higher level of signs of depression. Key risk factors were physical and emotional abuse within the household, low study results and high educational stress. Depression was found to be the main predictors of suicide ideation among these students. As many as 26.3% of students had seriously considered suicide, 12.9% had made a suicide plan and 3.8% had attempted suicide. A majority of students thought that reducing the demands of the academic curriculum, appointing confidential counselors and sharing their concerns on an appropriate website would help to improve their mental health.

The prevalence of depressive symptoms was 25.9% based on CES-D scores with the cut-off point >21, and 18.7% using the cut-off point >25. The prevalence of depressive symptoms in this study was quite similar to Thai's findings (2010) (26.3%) but much higher than that of a study of adolescents (12-17 years) in California, USA, in which approximately 10% of the adolescents reported more than 10 depression symptoms [14]. However, a further US study reported a higher level of depressive symptoms among young people (mean age 19.7) with 38.5% and 10.4% scoring at or above 16 and 28 CES-D total scale cutoffs respectively [15]. Regional and national differences in the mental health scores of children and adolescents may be explained by several factors including individual, familial, and environmental/cultural aspects. Environmental stressors, such as poverty, traumatic events and illness, have been consistently linked to poor mental health among youth across the globe [16]. The socio-economic development status in Can Tho City, the location of this study, is much lower than in Ho Chi Minh City or the USA, which may explain the higher levels of anxiety and depressive symptoms among our study population.

The prevalence of suicidal thoughts (26.3%) and suicide plans (12.9%) among this study population was higher than in the Ho Chi Minh City (6.3% suicidal thoughts and 4.6% suicidal plans) and Hanoi studies (10.6% suicidal thoughts) [6], but similar to levels found among Malaysian secondary students (25.3% with suicidal thoughts and 10.5% with suicide plans) [17]. The prevalence of suicide attempts (3.8%) in this study was however lower than those in Ho Chi Minh City (5.8%) [10] and Hanoi (9.2%) [8]. Suicide featured more prominently among these students than among first year university students at Can Tho University of Medicine and Pharmacy [7], although both study populations were living in the same environment. Lifestyle differences between Can Tho City, Ho Chi Minh City and Hanoi may be responsible for differences in mental health status (e.g. economic status and other factors as mentioned above). The higher rate of suicide ideation among secondary school students in this study compared to medical university students may reflect the higher education and income of university students' parents. Another interpretation

could be that the medical students are farther along in their studies and may be more confident of the outcomes, whereas the secondary school students may still be uncertain what may happen in their studies, potentially causing greater education-related anxiety.

Previous research [10] found that high academic pressure and recent poor academic performance were associated with higher levels of depressive symptoms. In this study, high educational stress was also a main predictor of depression among students, consistent with findings from a national study [4, 10] and from international studies [18].

V. CONCLUSIONS

The rates of depression among the students who participated in the study confirm the findings of other studies that this prevalence is high among Vietnamese secondary school students. Research shows that depression has significant effects on students' quality of life, and is major risk factors for suicide. Emotional abuse within the family and high educational stress were the main causes of depressions. .

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THE PERIODONTAL STATUS IN HYPERTENSIVE PATIENTS AT THE HOSPITAL OF CANTHO UNIVERSITY OF MEDICINE AND PHARMACY, 2015-2016

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ABSTRACT

Background: Chronic periodontitis may predispose patients to the risk of hypertension. However, current scientific evidence addressing the relation between periodontitis and hypertension is limited to few studies producing inconsistent results Objectives: This study was performed to assess the periodontal status in hypertensive patients by describing meam levels of periodontal indices and some related factors in patients with hypertension at the hospital of Can Tho University of Medicine and Pharmacy. Subjects and methods: A cross – sectional descriptive study was conducted on 130 hypertensive patients aged 35 – 64. In order to evaluate the periodontal status of subjects, four indices, such as: Gingival Index (GI), Simplified Oral Hygiene Index (OHI-S), Probing Pocket Depth (PPD), Clinical Attachment Loss (CAL) were assessed and subjects having at least one site with clinical attachment loss (CAL) ≥3mm were diagnosed as having periodontitis. Hypertension was defined and classified based on WHO/ISH. For assessment of the prevalence in the populations of individual risk factors, hypertension was defined as having systolic blood pressure ≥ 140 mmHg or diastolic blood pressure ≥ 90 mmHg, or measurements below thresholds but self-reported anti-hypertensive medication. Hypercholesterolemia was defined as measurement of total cholesterol ≥ 6.2 mmol/l (240 mg/dl) at the time of survey, or measurement below threshold but self-reported cholesterol-lowering medication. Results: The mean of GI: 1,25 ± 0,42, OHI-S: 2,41 ± 0,42, PPD: 1,37 ± 0,46 mm and CAL: 2,73 ± 1,11mm. With an increase of CAL, there was a progressive increase in blood pressure (r = 0,295, p<0,01). Conclusion: Our results suggest that periodontitis may contribute to poor blood pressure control among older adults.

Keywords: periodontitis, hypertension, blood pressure.