ความชุกและปัจจัยทำนายภาวะซึมเศร้าในนักเรียนมัธยมศึกษาอินโดนีเซีย

Prevalence and predictors of depression among high school students in Indonesia

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วารสารพยาบาลศาสตร์และสุขภาพ
Journal of Nursing Science & Health
ปีที่ 39 ฉบับที่ 1 (มกราคม-มีนาคม) 2559
Volume 39 No.1 (January-March) 2016

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาความชุกของภาวะซึมเศร้าในวัยรุ่นและปัจจัยทำนายภาวะซึมเศร้าของวัยรุ่นในเมืองซามารินดา จังหวัดกาลีมันตันตะวันออก ประเทศอินโดนีเซีย กลุ่มตัวอย่างคือวัยรุ่น จำนวน 552 คน ซึ่งกำลังศึกษาระดับมัธยมศึกษาตอนปลายในช่วงอายุ 14 ถึง 19 ปี คัดเลือกกลุ่มตัวอย่างแบบกลุ่มแบ่งชั้น เก็บข้อมูลระหว่างเดือนมีนาคมถึงเมษายน พ.ศ. 2558 เครื่องมือวิจัยประกอบด้วย แบบวัดอาการซึมเศร้า CES-D ความคิดอัตโนมัติทางลบ การแก้ไขปัญหาสังคม เหตุการณ์กดดันในชีวิต และความสัมพันธ์กับพ่อแม่ วิเคราะห์ข้อมูลด้วย t-test การทดสอบไคสแคว์ สหสัมพันธ์แบบเพียร์สัน และการวิเคราะห์สมการถดถอยแบบเป็นขั้นตอน ผลวิจัยพบความชุกของภาวะซึมเศร้า 52.7% (26.6% สำหรับเพศหญิง และ 26.1% สำหรับเพศชายระดับการศึกษา เหตุการณ์กดดันในชีวิต และความสัมพันธ์กับมารดามีความสัมพันธ์กับภาวะซึมเศร้า ผลลัพธ์การวิเคราะห์สมการถดถอยแบบเป็นขั้นตอนพบว่าเหตุการณ์กดดันในชีวิตและระดับการศึกษาเป็นปัจจัยทำนายภาวะซึมเศร้าในวัยรุ่นโดยรวม R^2 7.7% (F = 22.84, P = 0.000)

คำสำคัญ: ภาวะซึมเศร้า วัยรุ่น มัธยมศึกษา ประเทศอินโดนีเซีย

Abstract

This descriptive correlation study aimed to describe the prevalence of adolescent depression and explain selected variables as predictors of depression in adolescents from Samarinda municipality, East Kalimantan Province, Indonesia. A total of 552 senior high school students, aged 14 to 19 years, were recruited through a stratified cluster sampling from March to April, 2015. The instruments were CES-D, Negative Automatic Thoughts, Social Problem Solving, Negative Life Events and Parental Bonding. The researcher analyzed the data employing statistical methods including *t*-test, Chi-square, Pearson correlation and multiple linear regressions. The results showed the prevalence of depression in the sample of Indonesian adolescents was 52.7% (26.6% female, 26.1% male). The stepwise regression results indicated negative life events and education level as the significant predictors of adolescent depression, accounting for 7.7% of variance explained (F= 22.84, p=0.000).

keywords: depression, adolescents, high school, Indonesia.

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Introduction

Depression is a worldwide mental health problem, a common psychological disorder in adolescents[1]. According to The World Health Organization, it is predicted that by 2030 depression will be the leading cause of secondary disability worldwide, second only only HIV/AIDS[2]. According to the Ministry of Health of Indonesia,[3] adolescents suffering from depression increased gradually from 43 million adolescents (ages 10 to 19 years) to 62 million of the total population between 2006 and 2008, respectively.

Depression has many significant impacts on the lives of adolescents. Depression in young people is associated with poor academic performance, social dysfunction, substance abuse, attempted and completed suicide[4], and prolonged experiences of sadness/hopelessness, all of which impair adolescents from pursuing their usual activities[5]. The occurrence of substance use, non-suicidal self-injury, and other suicide related behavior also leads to impaired functioning in later life[6] such as emotional suffering, decreased participation in social activities, impairment in social and interpersonal relationships[7], difficulties with peer relationships, low self-esteem, body image disturbance[8], and disharmony at home[9].

In Indonesia, previous studies concerning depression in high school adolescents describe a variety of related factors. For example, results from a cross sectional analytic study found that psychosocial stressors increase the incidence of adolescent depression[10]. Correlation studies have examined parenting relationships, suggesting that authoritarian parents contribute to depression in adolescents[11,12]. Additionally, a previous correlation study suggests that a relationship exists between the level of communication between mother and child depression in adolescents. However, these studies failed to account for the influence of other factors. Therefore, this study employed predictive research to control the influence of other factors on the research and can therefore more accurately and usefully predict the likelihood of adolescent depression.

Among the many factors which contribute to adolescent depression, previous literature shows that girls and boys experience depression at different stages in their lives. Girls, for example, experience peak depression in the adolescent and early adulthood period[13]. Similar discrepencies also occur within the periods of time themselves. For example, adolescents in grade 12 experience depression more than adolescents between grades 10 and 11[14], in part because negative life events, like educational stress, also contribute to adolescent depression. Third year high school students in particular express concern about the Indonesian national exam because the standard graduation rate increases continuously.

Furthermore, there are positive relations between both ineffective social problem solving skills and depression, as well as negative relations between effective social problem solving and depression. It was also found that adolescents who perceive low parental care or parental over protection tend to experience depression[15]. A longitudinal study of community samples[16] suggested that maladaptive parental behavior may, over time, be a nonspecific risk factor for a variety of psychopathological outcomes, including depression in adolescents.

In light of the wide range of factors expressed above, negative thought exists as a major, cause of depression in adolescents[17]. From childhood until adulthood, all of life's events, especially the

experience of negative events, plays an essential, contributory role in an individual's mental health[18]. Thus, in the future, the level of depression symptoms will be predicted through the experience of negative life events[19] which are now considered precipitating factors in most stress-diathesis models of depression[20].

Indeed, there are many theories seeking to explain depression in adolescents. Therefore, in this study we employ a multiplicity of studies in order to draw on factors from a variety of literature reviews that correlate to depression. The conceptual framework (Figure 1) in this study is drawn from related literature that found that sex, educational level, educational achievement (GPA), negative automatic thoughts, negative life events, social problem solving and parental bonding are significant factors as independent variables. Furthermore, age, religion, relation to the head of the household, family characteristics, educational level of households, and income per month of the household head are all confounding factors in the conceptual framework diagramed below:

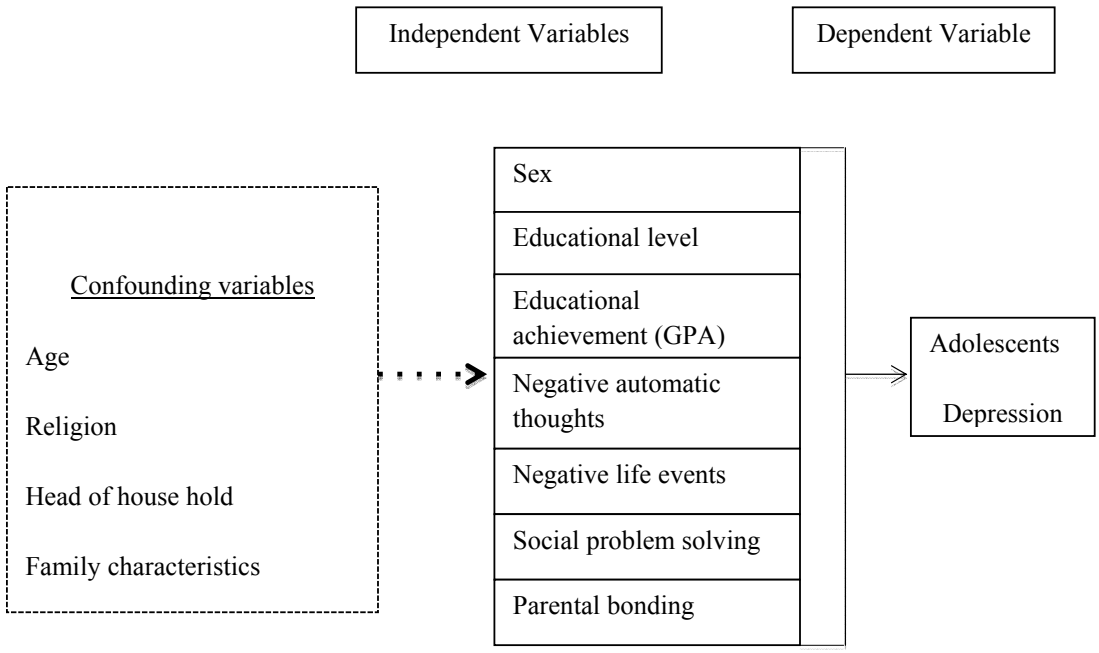

Figure 1 Conceptual framework

Material and methods

Design

A descriptive correlation study design was conducted from March to April, 2015. The sample size estimation was calculated by using the Daniel formula[21] with a significant level of 95% and precision level of 5%. The proportion of adolescents affected by depression was 39.3%, based on a former study exploring adolescent depression[22]. Using stratified cluster sampling, 552 adolescents aged 14 to 19 years (276 males; 276 females) in grades 10 to 12 at three public high schools in Samarinda municipality, East Kalimantan Province, Indonesia, were selected to participate. The study was approved by the

Institutional Review Board (IRB), Khon Kaen University, Thailand with record No. 4.4.01: 08/2015 and reference No. HE572307 and the Department of National Education Indonesia from the branch located in Samarinda, who approved the protocol of study in March, 2015.

Instruments

The Center for Epidemiologic Studies - Depression (CES-D) Scale was selected for assessing depression levels and consists of 20 items with four components of depression including depressed effect, positive effect, somatic and retarded activity, and interpersonal relationship with a score range of between zero and 60[23]. However, the cut-off point of CES-D varies in different populations[24]. The traditional CES-D cut-off point is the one which Radloff used for the general population[23]. In Indonesia, several researchers translated the CES-D into the Indonesian language and found it to be valid as a screening tool for depression, especially in adolescents with an optimal cut-off point proposed as 20. At a cut-off point of 20 there was an obvious increase of specificity (93.1%) compared to a cut-off point of 16 (85%)[25]. Therefore, the researcher employed a cut-off point of 20 when assessing depression in Indonesian adolescents.

The Indonesian version of Automatic Thought Questionnaire (ATQ) was used to assess the frequency of negative internal thoughts about self, world, and future and consists of 30 items[26]. The ATQ has four domains which asses negative self-concepts and expectations, personal maladjustment, low self-esteem, as well as giving up/helplessness. It has a possible score range where a higher score indicates more frequent negative cognitions (scores = 30-150). The ATQ reflects negative self-statements associated to depression. The Indonesian version of ATQ, with Cronbach's alpha coefficients 0.87, was used in this study.

A negative event scale (NES) assesses the level of negativity for adolescents as the target population[27]. The instruments provided in the modified version, especially for adolescents who study in high school, have ranges between 0 and 210 where the total score is obtained by summing across 42 items. This includes 10 subscales which are associated with negative situation experiences, include questions regarding problems with friends, boy/girlfriends, courses/schoolwork, teacher/lectures, academics and course interest fees, parents, other students, relatives, health, as well as money.

The Short Form of the Social Problem Solving Inventory-Revised (SPSI-R: SF) was selected for the problem solving process, measureing constructive cognition, positive problem orientation and rational problem solving effectiveness, as well as behavioural processes by which people try to identify and implement adaptive coping responses to problematic situations that are effective socially when problem solving[28]. Higher scores indicate that individuals are more ineffective in their social problem solving ability, with a total score range of between 0 and 60.

Parental Bonding Instruments (PBI) was used to assess the perceptions of adolescents regarding their relationships and experiences with their parents[29]. Parental bonding was divided into two sections. First, affecting parental care was measured with a score range of 0-36, a higher score meaning greater perception of parental care. Secondly, parental overprotection was measured with scores ranging

between 37-75. If the score was higher it reflected a greater perception of parental overprotection. This instrument measured the degree to which both a father or mother are either empathic and caring, or cold and indifferent.

Translation and reliability

Of the five instruments that exist in this study, the researcher has done the translation for three of them, inicluding the research instruments for negative life events (NES), social problem solving (SPSI-R: SF) and parental bonding (PBI). The translation was done at the Center for Languange, University of Muhammadiyah Yogyakarta, Indonesia, which has an International translator license/ certificate. After translating the instruments into the Indonesian language, a pilot study involving 30 adolescents was conducted to see if the intruments Indonesian version was reliably acceptable. The results of the reliability of three instruments that have been translated are: NES with α = 0.79, SPSI-R: SF with α = 0.88 and for PBI is divided into four components, namely maternal care α = 0.89, paternal care α =0.87, maternal overprotection α = 0.82 and paternal protection α = 0.79.

Data analysis

Descriptive statistics of frequency, percentage, mean, and standard deviations were calculated to analyze the socio-demographic and the prevalence of depression. A univariate analysis used the Pearson correlation for interval variables and Chi-square for dichotomous variables. The confidence level was 95% CI. Multivariate analysis, stepwise multiple linear regression, was used to identify the predictive factors related to adolescent depression.

Results

Demographic characteristics

The mean age of respondents was 16.31, which was similar between males and females. The majority (68.7%) of subjects were aged 16-17 years with males averaging a higher percentage than females (35%, 33.7%, respectively). Meanwhile, the 14-15 years group possesed a larger percentage of females (12.7%) than males (8.5%). Most (85%) of the participants were Muslim. Females had a slightly higher educational achievement (GPA) compared to the males. Most males had a GPA between 2.00 – 2.99 (31.3%) while the females had a GPA from 3.00 – 4.00 (25.2%). The majority of the heads of households were fathers. About 85% of respondents reported that they lived with married parents in a traditional nuclear family (47.8%). Half (50.4%) of the respondents had a household head who had completed senior high school, with most working in their business and (49%) having a monthly income of 80-160 USD (45.8%) followed by 161-385 USD (22.5%).

Prevalence of depression

The prevalence of depression in this sample of Indonesian adolescents was 52.7% while the prevalence of depression in both females and males was 26.6% and 26.1%, respectively. As presented in Table 1, as the grade level increased, the percentage of depression showed a tendency to also increase. Respondents, who in grade 10 have a zero percentage of depression, were slightly higher than the percentage with depression. However, respondents in grades 11 and 12 indicated a percentage with depression that is higher than respondents who had no depression.

Table 1 Numbers and percentages of the respondents indicating depression and no depression based on educational level

Educational Level	Total N (%)	Depression N (%)	No Depression N (%)
Grade 10	186 (33.6)	84 (15.2)	102 (18.4)
Grade 11	184 (33.3)	98 (17.7)	86 (15.6)
Grade 12	182 (33.0)	109 (19.7)	73 (13.2)
Total	552 (100)	291 (52.7)	261 (47.3)

As shown below in Table 2, the mean depression was 20.68 (SD = 6.584). There was no significant difference in the mean score of depression between males and females (p = 0.398). Meanwhile, females had a higher significant mean of educational achievement (GPA) and parental bonding with their mother than did males. Furthermore, those indicating depression had a significantly higher mean score of negative life events than those indicating no depression, as presented in detail in Table 3.

Table 2 Means and standard deviations of variables between male and female using *t*-test

Variables	Total (N=552)	Male (N=276)	Female (N=276)			
	Mean (SD)	Mean (SD)	Mean (SD)	95% CI	T	p
Depression	20.68 (6.584)	20.45 (6.395)	20.92 (6.771)	-0.627 – 1.576	0.216	0.398
Educational achievement (GPA)	2.39 (0.539)	2.30 (0.533)	2.49 (0.529)	-0.277- 0.100	-4.169	0.000*
Negative automatic thought	55.97 (13.921)	54.96 (13.272)	56.99 (14.494)	-4.353- 0.295	-1.715	0.087
Negative life events	29.45 (19.874)	28.87 (19.215)	30.04 (20.531)	-4.488- 2.162	0.687	0.492
Social problem solving	52.70 (12.519)	52.66 (12.415)	52.74 (12.645)	-2.175- 2.016	-0.075	0.940
Parental bonding with mother	44.34 (6.458)	43.36 (6.385)	45.31 (6.394)	-3.018- -0.881	-3.584	0.000*
Parental bonding with father	43.56 (7.269)	43.63 (7.188)	43.49 (7.360)	-1.071- 1.361	0.234	0.815

* p = statistical significant $\alpha \leq 0.05$

Table 3 Means and standard deviations of variables: A comparison between depression and no depression

Variables	Total (N=552)	Depression (N=291)	No Depression (N=261)			
	Mean (SD)	Mean (SD)	Mean (SD)	95% CI	t	p
Educational achievement (GPA)	2.39 (0.539)	2.40 (0.544)	2.39 (0.533)	-0.075- 0.105	0.328	0.743
Negative automatic thought	55.97 (13.921)	55.90 (13.724)	56.06 (14.163)	-2.490- 2.176	-0.132	0.895
Negative life events	29.45 (19.874)	33.24 (21.979)	25.23 (16.258)	4.744- 11.270	4.820	0.000*
Social problem solving	52.70 (12.519)	52.46 (12.513)	52.96 (12.546)	-2.603- 1.593	-0.472	0.637
Parental bonding with mother	44.34 (6.458)	43.85 (6.574)	44.89 (6.293)	-2.119- 0.039	-1.893	0.058
Parental bonding with father	43.56 (7.269)	43.90 (7.451)	43.18 (7.054)	-0.493- 1.941	1.169	0.242

*p = statistical significant $\alpha \leq 0.05$

Predictor factors to adolescent depression

A Pearson correlation was used to determine the significance of the relationship for interval variables. These variables were academic achievement, negative automatic thought, negative life events, social problem solving, and parental bonding. Dichotomous variables used Chi-square for the variables of sex and educational level. Educational level was significantly related to the adolescents' depression ($p = 0.018$) whereas variables of negative life events and parental bonding with mother correlated to adolescent depression with ($p = 0.000$) and ($p = 0.046$), respectively. (Table 4)

The regression model was derived from a stepwise multiple regression analysis which was conducted to predict adolescent depression. Adolescent depression was entered as the dependent variable. Educational level, negative life events, and parental bonding with the respondent's mother were entered as the independent variables. Educational level was the first variable entered in the model and explained 2.3% of the variance ($R^2 = 0.023$). Negative life events, the second variable entered in the model, additionally explained 5.7% of variances in the total of adolescent depression ($R^2 = 0.057$). Meanwhile, parental bonding with mother, in this final model, constituted a variable that was excluded. In addition, the result of the study showed that only two variables were significant predictors of adolescent depression and were included in the model fit ($F = 22.836$, $p = 0.000$). (Table 5)

Table 4 Coefficients of multiple correlations (R), predictive coefficient (R^2) by each equation

Variables	R	R^2	Adjust R^2
Educational level	0.151	0.023	0.021
Negative life events	0.238	0.057	0.055
Educational level, negative life events	0.277	0.077	0.073

Table 5 Regression coefficients in the raw score (B), standard score form (β) of predictive in prediction factors.

Prediction factors	B	β	t	p
Educational level	1.139	0.141	3.444	0.001
Negative life events	0.077	0.233	5.672	0.000

Constant = 16.143, F = 22.836

Discussion

The prevalence of depression in Indonesian adolescents was 52.7%, which was higher than previously found in 2008 when the prevalence of depression in adolescents of senior high school age in Malang district, Indonesia was 39.3%[22]. This was also compared with studies of adolescents in other countries that used the same instruments to measure depression. For instance, the prevalence of adolescent depression ranged from 10% - 35 % in Australia, America, the United Kingdom, Nigeria and Iran whereas, in Korea, China, and Thailand, it ranged between 36 and 45 percent[15,30-33]. Furthermore, compared with previous studies that used other instruments to measure depression, the percentages proved similar. For example, in Iraq the prevalence of depression was 34% when using the Beck's questionaire[32]. In Seattle, when using Young Adult depressive episode (age 21), which is a modified version of the Diagnostic Interview Schedule (DIS)[34], the prevelance of depression measured 39%.

Further contributing to the prevalence of depression in adolescents, negative life events such as family economic status (including lower level occupations with middle income), and the educational levels of parents who completed senior high school, proved relevant. The results showed that approximately 49% of participants had a head of household involved in small business (selling vegetables, foods, drinks, or household tools at the front of their home or in the traditional market) with an average income, per month, of approximately 80-160 USD (45.8%). In Indonesia, under the provisions of the regional minimum wage, income is divided into three categories: low income (less than 80 USD), middle income (80-420 USD), and high income (more than 420 USD). Thus, the average income of the household heads in this study existed in the middle income range. Furthermore, 50.4% of participants had a head of household whith an education level of senior in high school. Thus, people with a high

income, occupational status, and education are shown to be happier[35]. Similarily, parents that have a high level of education express a greater understanding about health promotion behaviour and scientific knowledge than parents that have a low level of education[36].

The findings also showed that the prevalence of adolescent depression between Indonesian females and males was almost equal (26.6%, 26.1%, respectively). This result does not concur with other studies where females showed a higher level of depression prevalence than males. For example, in America the depression levels were 7% (for female) and 3% (for male). In the United Kingdom, the levels were 6.1% (female) and 4% (male). In Thailand the levels were 8% (female) and male (5.5%), In Korea the levels were 20.6% (female) and 17.4% (male) [15,30,33] In childhood, social roles do not affect boys and girls differently. In adulthood this is different, in part because males and females play different social roles. Hence, gender seemed to be more influential in adult depression than in adolescents[37].

This study also showed that females had higher educational achievement levels (GPA) than males[38]. It has been suggested that female maturity manifests in an ability to concentrate more effectively and to be better organized, especially in relation to course work. Also, this study revealed that females had a higher level of parental bonding with their mothers. Compared to males, females are more sensitive the communication signals and behavior changes of their parents. Females will instantly identify communication with their parents while males explicitly sort and store information before clarifying.

Of the negative life events it was found that adolescents with depression have a mean score that is high compared to those without depression. When adolescents experiencing stresfull life events, the adolescents are the same as experiencing negative life events[39]. This study found that the negative life events affecting adolescents resulted from both school and family environments. For example, one academic obstacle was when an adolescent in school had conflicts with friends and was not able to concentrate on and complete academic assignments. This was also true at home where conflicts with over-protective parents and other family members often had similar results. Consequently, negative life events were found to be significantly related to relationships, leading to increased depression in high school adolescents.

Currently, the level of educational competence in Indonesia for upper secondary school is high compared to the competence levels in other countries[40]. In Indonesia, senior high school education is divided into three classes, 10-12. With 10 being the lowest, 11 being the middle, and 12 being the highest level class. While students in these classes learn in the same environment of the they receive different materials and meet different compentency requirements[22]. Teens who learn in class 12 prepare for the final exam in Indonesia, whicih is called the National Exam. For them this exam is very scary because it determines their graduation. Because the target competency in high school in Indonesia is so high, the learning atmosphere in the school is not conducive to positive mental helath.

Finally, the findings indicated that there was no statistically significant relationship between educational achievements (GPA), negative automatic thought, social problem solving, and depression in Indonesian adolescents. One of reasons adolescents get depression in school is the increasing performance level of study in the learning process[41]. What is of importance is the means by which adolescents get past the education process, not the education result. This study presents the mean of the negative automatic thought variable as low, with 55.97 (SD= 13.92) compared with the newest results that found that the mean of this variable was 67.45 (SD = 19.8)[42].

The majority of the participants, 85%, were Muslim. In the Muslim religion, obligatory prayer takes place five times a day so that it can draw people closer to God, at any time.

This is the best way for teens to remain optimistic and think positive about both the present and the future. In addition, religious leaders may be able to play a role in reducing depression by helping to find solutions to adolescent student problems[43]. Under Indonesian law No. 20 of 2003, which concerning the national education system provides solutions to socio-educational problems in school, every high school in Indonesia must provide several programs to reduce social problems in the school environment. These programs aim to develop a good quality of life for adolescents, prevent the dangers of drugs, stop bullying, and also increase psychosocial skills. Therefore, it is obvious that adolescents in Indonesia have effective ways to solve social problems. Also, it is indicated that an individual is more effective in their ability of solve social problems if their score is high[27]. The result of this study's finding reported that the mean score of an individual who can solve social problems was 52.70 (SD= 12.52).

In the regression model, negative life events and educational level were found to be significant predictors of adolescent depression in Indonesia. Parental bonding with the mother, as a variable in this study, was not a significant predictor to adolescent depression. Consistent with previous research, the study predicts that individuals who have experienced negative life events before the onset of depression will report greater overall severity of depression[44]. It can be said that negative life events were found to be the most predictive factor of adolescent depression. Also, there is a link between presence of depression and educational level in high school: for example, the higher the educational level, the higher the score for depression.

Conclusion and recommendation

The most important factor in developing prevention and intervention programs to reduce depression in adolescents is to give health education, specifically mental health education, in academic environments. The research findings from this study indicates that adolescents in the risk group of depression have experienced negative life events and have a high educational level. Regarding items of academic limitation and study load in NES, the school should provide a counseling center with youth-friendly services to help adolescents cope with problems concerning academic limitation within a time management program so as to assist in future planning, prioritizing tasks, avoiding overload, practicing effective study

techniques. Beyond items in the NES, conflict with friends and peers could be helped by recommending a communication skills program to help deal with these problems. For example, they should learn about the value of relationships; understand emotions, control of emotions, empathize with others, understand alignment, and have objectives.

A psychiatric nurse is able to to teach stress management and provide a negative life events screening program during the early education levels, such as grade 10-11, so that adolescents have skills for stress management as they move into grade 12. In addition, teaching stress management will help adolescents to handle negative life events whenever they come. Regarding stress management, there is a comprehensive coaching course of healthy alternatives to help handle stress in daily lives. For instance, physical activities (sports), personal productivity skills, present moment awareness, leading a balanced life, journaling (diary), as well as meditation. This strategy must include the participation of health workers and class coordinators to conduct the program in the school.

Limitation

The limitation of this study is that it focuses generally on in-school, Indonesian, adolescents. Therefore, additional studies are needed to understand predictors of depression within other populations such as a comparison of depression between rural and urban adolescents, students of public schools and private schools or adolescents who attend school or do not attend school.

Acknowledgment

The researcher would like to express sincere thanks to the Faculty of Nursing, Khon Kaen University, Thailand for their support of this study. The researcher also gives thanks to the Directorate General of Higher Education, Ministry of Education and Culture, Indonesia for providing the scholarship to finish the study and STIKES Muhammadiyah Samarinda, Indonesia for providing the opportunity and support during the study.

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