

## DEPRESSIVE AMONG ADOLESCENT IN SARAWAK

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### ABSTRACT

*Depression and suicide among teenagers in Malaysia is a growing concern (Kok & Goh, 2011). The objectives of this study were to determine the prevalence of depressive symptoms and its association with demographic characteristics among secondary school students. A cross sectional survey was employed; 386 students were recruited, aged 13 to 16-years-old. Stratified random sampling was performed to choose several secondary schools from rural and urban areas of Sarawak, East Malaysia. The rate of depressive symptoms among secondary school students in this area was 7.8% (30). Among those who reported having depressive symptoms, 43.3% (13) had thoughts of committing suicide, 40% (12) had suicidal ideation, and 16.7% (5) never had any suicidal thought or ideation. Students of Chinese ethnicity were significantly more depressed than other ethnicities. Students who had only one sibling were more depressed than those who had more than one sibling. Students who were staying in urban areas were more depressed compared to students staying in rural areas. While previous studies have reported that girls are more depressed than boys, no significant difference in depressive symptoms was found between genders. Type of schooling, living arrangement, family history of depression, and staying with extended family members had no significant association with depressive symptoms.*

**Keywords:** *Depression, Adolescents, Cross-Ethnic, Gender, Malaysia*

### ABSTRAK

*Murung dan bunuh diri dalam kalangan remaja di Malaysia semakin membimbangkan. Objektif kajian ini adalah untuk menentukan prevalens gejala kemurungan dan kaitannya dengan ciri-ciri demografi dalam kalangan pelajar sekolah menengah. Satu kajian keratan rentas telah dijalankan; 386 pelajar telah terlibat, mereka berumur 13 hingga 16-tahun. Persampelan rawak berstrata dilakukan untuk memilih beberapa buah sekolah menengah di kawasan bandar dan luar bandar di Sarawak, Malaysia Timur. Kadar gejala kemurungan dalam kalangan pelajar sekolah menengah di kawasan ini adalah 7.8% (30). Mereka yang dilaporkan mempunyai gejala kemurungan, seramai 43.3% (13) mempunyai pemikiran ingin membunuh diri, 40% (12) terfikir untuk membunuh diri, dan 16.7% (5) tidak pernah mempunyai apa-apa pemikiran membunuh diri atau terlintas. Pelajar berketurunan Cina secara signifikan lebih tertekan daripada etnik lain. Pelajar yang hanya mempunyai seorang adik-beradik lebih tertekan berbanding mereka yang mempunyai lebih daripada seorang adik-beradik. Pelajar-pelajar yang tinggal di kawasan bandar lebih tertekan berbanding dengan pelajar yang tinggal di kawasan luar bandar. Walaupun kajian sebelum ini telah melaporkan*

*bahawa kanak-kanak perempuan lebih tertekan daripada kanak-kanak lelaki, tidak ada perbezaan yang signifikan dalam gejala kemurungan didapati di antara jantina. Jenis persekolahan, status penjaga, sejarah keluarga yang mengalami kemurungan hidup, dan tinggal dengan ahli keluarga besar tidak mempunyai hubungan yang signifikan dengan gejala kemurungan.*

**Kata kunci:** *Murung, Remaja, Pelbagai Etnik, Jantina, Malaysia*

## INTRODUCTION

Adolescence is a developmental stage that all human undergo. This is a phase when many psychological and biological changes occur in life. The general public often treats depression as a part of adolescent development or even as a natural process during this stage. Many ignore the fact that depression during adolescence is not a normal developmental phenomenon (Kok & Goh, 2011). A previous study has shown that, when depression during adolescence is untreated, it can persist to adulthood (Lewinsohn et al. 2000). Evidently, depression in adolescence is associated with poor school performance, substance abuse, conduct disorders, and when symptoms were severe enough it can lead to attempted suicide (Beautrais 2003; Renouf, Kovacs, and Mukerji 1997).

The perceived increasing prevalence of depression among adolescents has sparked concern among educators, community leaders, and healthcare providers in Malaysia. Nationally, systematic reporting on the actual rate of depression and suicide among adolescents is limited, particularly in the State of Sarawak. While this could be due in part to depression in adolescents being under-diagnosed and unrecognized (Reynolds 1994), the lack of serious study of the problem in the Malaysian context represents a troubling gap in knowledge.

Worldwide, nearly twenty years ago depressive disorder in adolescents was estimated only between 4 to 8 percent (Lewinsohn et al. 1994). Six years later dramatic prevalence was reported in the United States, when prevalence of depression was estimated at 32% for males and 38% for females (Scheidt et al. 2000). The most recent study in Saudi Arabia reported similar findings, where 38.2% of high school students were found to have depressive symptoms (Al-Gelban 2007). In Korea, 15.4% of males and 19% of females reported having mild depressive symptoms (Kwak et al. 2008). A study conducted by Fleming and Jacobsen (2009) in Chile reported that 30% out of 8131 middle school students had depressive symptoms. Similar findings were also noted in other studies in Scandinavia and Italy in which about 10% of the studied adolescents sampled were depressed (Arnarson, Smari, and Jonasdottir 1994; Poli et al. 2003; Sund, Larsson, and Wichstrom 2001). The sizable variance in prevalence is probably due to the use of different measurement tools and diagnostic criteria (Al-Gelban 2007; Poli et al. 2003; Sund, Larsson, and Wichstrom 2001) or to the difference in age groups among their participants (Arnarson, Smari, and Jonasdottir 1994; Poli et al. 2003).

In Malaysia, the prevalence of depression among adolescents has been estimated at 10% to 24% (Ramli et al. 2008; Kasmini et al.1987; Teoh 2010). A study conducted in the year 2007 by Ramli et al. (2008) among 2048 secondary school children in Selangor reported that an average of 10.3% of the school children is likely to be depressed. 9.8% of such cases were among urban adolescents and another 10.8% were from rural areas. Another study done by Kasmini et al. (1987) in a rural area of Selangor reported that 15% of the adolescents in rural areas had depressive symptoms. A similar study reported depressive symptoms in approximately 24% of school adolescents in urban areas (Teoh 2010).

Various sociodemographic factors are associated with depressive symptoms. In the Malaysian study by Ramli et al. (2008), girls were found to be more depressed than boys. Similar findings were reported in previous studies in China (Lau, Chan, and Lau 1999; Greenberger et al. 2000). Another factor that has been linked to higher prevalence in adolescent depression was ethnicity. Chinese-American was found to have higher rate of depression in the United States (Yu and Seligman 2002; Auebach, Eberhart, and Abela 2010). Several studies were conducted to investigate the prevalence of depressive symptoms among Malaysian secondary school children more than six years ago (Ramli et al. 2008 & Kasmini et al. 1987). One recent study was conducted only among urban adolescents (Teoh 2010). All previous studies of adolescent depression in Malaysia have been conducted in the State of Selangor, which is the wealthiest, most developed, most populous state in the federation, and is home to Malaysia's capital and only megacity. Prevalence of depressive symptoms in adolescents in other areas of West Malaysian or in East Malaysia is virtually unstudied. It is an open question whether Selangor is representative of conditions elsewhere in the country. Therefore, the objective of this study is 1) to identify the demographic characteristics of adolescents who reported having significant depressive symptoms, 2) to determine the prevalence of depressive symptoms among our secondary school students; 3) to determine the association between depressive symptoms, gender, and ethnicity.

## METHOD

### *Participants*

The participants were 386 secondary school students aged 13-16 years old. The sample size was calculated using Open Epi software version 2.3. Power analysis was run by considering the number of secondary school students in the area and a precision confidence interval of 95%. Power calculation suggests that a sample size of 377 should be able to dictate significant findings. To maximize the study's power and to allow a drop-out rate of 5%, 400 participants were recruited during the recruitment period.

### *Measures*

*Children Depression Inventory (CDI)*. The Child Depression Inventory (CDI) is a 27-item symptom-oriented instrument for assessing depression in children between

the ages of seven and 17 years (Kovac 1992). The Cronbach's alpha of this instrument within other cultures is 0.71-0.87. The Malay version of CDI has been validated by Rosliwati et al. (2008). The scale has a good level of internal consistency with a Cronbach's alpha of 0.83. It has 90% sensitivity and 98% specificity in detecting depression in children and adolescents with the optimum cut off points of 18 according to ROC (Receiver Operating Characteristic) curve. In this study, the Cronbach's alpha was 0.86. The CDI scale comprises of 5 domains: negative mood, interpersonal problems, ineffectiveness, anhedonia and negative symptoms. Total score of 18 and above suggest a child or adolescent is having depressive symptoms. However, based on the guidelines of the CDI manual (Kovac 2004), the raw test scores have to be converted into T-scores in which each scale has a mean of 50 and a standard deviation of 5. Clinically depressed symptoms would be determined when the T-scores were above 65.

### ***Design, procedure, and ethical approval***

This study adopted a cross-sectional research design. Stratified random sampling was performed to choose schools from rural and urban areas. Classification of urban and rural schools was determined by the District Education Office by distance of the school from the state capital, Kuching. Informed consent was obtained from the parents. All participants were briefed on the aims of the study, their rights as participants and issues related to confidentiality. The questionnaires were administered in a classroom.

Ethical approval was obtained from the Federal Ministry of Education, the Sarawak State Education Department and the University Malaysia Sarawak Research and Ethics Committee. Potential participating schools were selected following ethical approval.

## **ANALYSIS**

The Statistical Package for Social Sciences (SPSS) version 17.0 was used for data entry and analysis. Data checking and cleaning were performed prior to analysis. An internal consistency test was used to examine the reliability of the CDI scales. Reliability, which examines the consistency of scores on repeated use of an instrument for a group of people, was tested using a Cronbach's alpha coefficient. A Chi-square analysis was used to report the dichotomous demographic characteristics (age, gender, ethnicity, type of school, complete or single parent, number of sibling, birth order, staying with extended family, family history of depression, and area of stay) in association with those who reported significant depressive symptoms. The dependent variable was defined as whether or not students have depressive symptoms (0 = normal; 1 = having depressive symptoms).

Normality test was done before comparing the means of continuous dependent variables of two groups. According to the histogram, the depressive score was normally distributed. Total score of depressive symptoms was also analyzed

using skewness and kurtosis. It was normally distributed with skewness of 0.88 (SE =0.12) and kurtosis of 0.83 (SE = 0.25). Therefore the independent t-test was employed to see the mean differences of depressive score between females and males. One-way Anova was performed to see differences of depressive symptoms mean T-score among the three ethnic groups.

## RESULTS

Out of 386 respondents, 161 (41.7%) were aged 13 years old, 111 (28.8%) aged 14 years old and 114 (29.5%) aged 16 years old. The mean age was 14.2 (SD = 1.25). Out of 386 participants, 57.5% (222) were female and 42.5% (164) were male. The largest ethnic group was Malay at 69.9% (270), followed by Chinese at 20.2% (78) and Native, 9.8 % (38). Of respondents, 205 (53.1%) had 4 or more siblings, 44% had 2-3 siblings and only 2.9% were the only child. The majority of respondents (72%) had no extended family member staying with them.

Of the respondents, 63% stayed in rural areas while the remainder stayed in urban areas. Most students, 87% (336), commuted daily from home, while the rest attended boarding schools. Almost all of them stayed with both parents (93.3%) while 6.7% stayed with only one parent.

Descriptive analysis showed that the prevalence of self-reported depressive symptoms was 7.8% (30) with T-scores of 65 and above. Among those who reported having depressive symptoms, 43.3% (13) had thought of committing suicide, 40% (12) had suicidal ideation but they did not plan to do it, and only 16.7% (5) never had any suicide thought. Chi square analysis showed a significant association between percentage of suicidal thoughts and percentage of depressive symptoms:  $\chi^2 (2, N= 386) = 51.85, p < .0001$ . The association was of moderate strength:  $\Phi = .367$ . Thus suicidal thoughts accounted for 13.6% of the variance in the percentage of depressive symptoms.

Table 1 describes the demographic characteristics of participants with and without depressive symptoms.

**Table 1: Demographic characteristics of participants with depressive symptoms based on  $\chi^2$  analyses**

Variable	Non-depressive (%) score (n = 356)	Depressive (%) (n =30)	p Value
Gender			
Female	92.8	7.2	0.630
Male	91.5	8.5	
Ethnicity			
Malay	97.4	2.6	0.001
Chinese	71.8	28.2	
Native	97.4	2.6	
Schooling type			
Boarding	94	6	0.616
Commuting	92	8	
Living with			
Both parents	92.2	7.8	0.869
Father only	100	0	
Mother only	91.3	8.7	
Number of Sibling			
Single	81.8	18.2	0.002
2-3	87.6	12.4	
4 or more	96.6	3.4	
Family History of Depression			
Yes	75	25	0.184
No	92.6	7.4	
Not sure	92.6	7.4	
Stay with extended family members			
Yes	90.8	9.2	0.325
No	92.8	7.2	
Place of Stay			
Urban/Suburban	84.4	15.6	0.000
Rural	96.7	3.3	

Most demographic characteristics were not significantly associated with percentage of depressive symptoms. Only three demographic characteristics showed significant association. First, there was significant association between percentage of depressive symptoms and ethnicity:  $\chi^2 (2, N= 386) = 56.938, p < .0001$ . The association was of moderate strength:  $\Phi = .384$ . Thus ethnicity accounted for 14.7% of the variance in the percentage of depressive symptoms. Second, there was significant association between percentage of depressive symptoms and number of siblings:  $\chi^2 (2, N= 386) = 12.07, p < .0005$ . The association was of

weak strength:  $\Phi = .177$ , thus number of siblings accounted for only 3.1% of the variance in the percentage of depressive symptoms. Finally, there was significant association between percentage of depressive symptoms and living location:  $\chi^2 (1, N= 386) = 19.00, p <.0001$ . The association was of weak strength:  $\Phi = .222$ , thus living location accounted only 5% of the variance in the percentage of depressive symptoms.

Further analysis was conducted using a one-way anova to determine the mean score differences of the depressive symptoms among the three ethnic groups. There was significant difference in depressive symptoms mean score at the  $p < .001$  level for the three ethnic groups, [ $F (2, 383) = 29.9, p = 0.000$ ]. Post hoc comparisons using the Bonferroni and Sidak tests indicated that the mean score for Chinese ( $M = 57.20, SD = 12.15$ ) was significantly different from Malay ( $M = 48.26, SD = 8.1$ ) and Native ( $M = 47.7, SD = 10.78$ ) ethnic groups. However, mean score for Malay ethnicity was not significantly different from Native.

## DISCUSSION AND CONCLUSION

The prevalence of depressive symptoms in our sample was slightly lower than previous studies (Ramli et al. 2008; Fleming and Jacobsen 2009; Kasmini et al. 1987). Although a previous study on a Malaysian population had shown that females were significantly more depressed than their male friends (Ramli et al. 2008), in this study no gender difference was found. One possible explanation is related to whether or not most participants were in the postmenarcheal or premenarcheal stage (Hayward et al. 1999). Hayward and colleagues (1999) found that gender difference was only found among those in the postmenarcheal group while no significant difference was found between the genders among premenarcheal adolescents. Similarly, the most recent study conducted by Conley and Rudolph (2009) reported that gender differences were markedly different in relation to different pubertal developmental groups. They found that puberty had different effects on depressive symptoms in boys and girls, with girls experiencing higher rates of depression as they progressively become more developmentally mature. In contrast, boys experience less or similar states of depressive symptoms when they become more pubertal. Conley and Rudolph (2009) also found that depressive symptoms were intensified by peer pressure in different pubertal stages between boys and girls. When stage of puberty in boys and girls was removed, together with peer pressure, no gender difference was found in adolescent depressive symptoms.

Ethnicity was found to have significant association with depressive symptoms. Chinese adolescents were significantly more depressed than Malay and Native adolescents. Ramli et al. (2008) found a similar association, and they speculated that it may be due to greater pressure to perform well in school, and/or they were more open in disclosing their emotion in comparison with other ethnic groups. Yu and Seligman (2002) in their longitudinal study using CDI found that Chinese adolescents reported significantly higher depressive symptoms than

American adolescents. Auerbach and co-researchers (2010) found that Chinese adolescents reported significantly higher levels of depression than their Canadian peers. They attributed the higher depressive symptoms among Chinese adolescents to different cultures and beliefs. The finding of the present study invites comparison to the study conducted by Paxton and his co-researchers (2007). They reported that Hispanics and other ethnic minorities in the United States were significantly more likely to report depressed mood compared to Caucasians and African Americans. Whether Chinese adolescents in Sarawak are more vulnerable to depression due to their minority status could be answered by a joint study with neighboring Singapore, where minority status of Malays and Chinese are roughly reversed.

Type of school attended (boarding school or daily commuting) did not have significant association with depressive symptoms. Malaysia has an extensive system of selective government boarding schools nationwide. It is not unreasonable to imagine separation from home and family could play a role in adolescent depression. However, neither residence in boarding schools nor number of parents at home had significant associations with depressive symptoms in this study. These findings were consistent with the previous study in Malaysia (Ramli et al. 2008).

Students who stayed in urban areas were more depressed than those in rural areas. Although this finding contradicts Ramli et al. (2008), other studies abroad reported that urban populations were more depressed than their rural counterparts (Bijil, Ravelli, and van Zerssen 1998; Mueller 1981). Mueller (1981) suggested that urban populations experience decrease in social relationships, and thus social isolation was more pervasive in comparison with those in rural areas. This appears reasonable in the Malaysian context, where a strong, rapid demographic shift from rural to urban has taken place since independence. The findings of Ramli et al. (2008) may be unrepresentative of the country because it focused on the greater Kuala Lumpur area, Malaysia's wealthiest, most highly developed location, where the lion's share of urban amenities are concentrated.

While a previous study suggests that family history of depression is associated with depression in adolescents (Klein et al. 2001), this study did not find a significant association between these two factors. The limited number of participants who had positive family histories of depression may have rendered the result not significant. This study also found that living with extended family had no significant association with depressive symptoms. According to Hamilton (2005), the association between extended families and adolescent psychological well-being may not be straightforward. His findings showed the presence of grandparents in the family was associated with fewer depressive symptoms, particularly among Black Americans, but the presence of aunts and uncles was associated with higher depressive symptoms.

#### ***Limitation and implication for future studies***

There are a few limitations in this study. This study relied on self-report and only a

single instrument was used to measure depressive symptoms. The recall bias may play some role which contributed to under reporting or misreporting symptoms. Extensive comparisons with many previous studies are hampered by differing instruments used. It is recommended that a structured clinical interview be used in the future at least for those participants who exhibit depressive symptoms. This would allow us to elicit more detailed depressive symptoms directly from participants and thus yield more accurate results from the population. Various instruments other than CDI should also be used to allow more meaningful comparison with previous studies.

In summary, depressive symptoms have become more common among adolescents. The prevalence has increased in Malaysia roughly following the global trend. Three significant factors were associated with depressive symptoms among our adolescents; ethnicity, number of siblings, and urban/rural location. Adolescents of Chinese ethnicity were found to have more depressive symptoms compared to other ethnic groups. Students who stayed in urban areas were more depressed compared to those in rural areas. It is important for public health specialists to be more sensitive to the fact that depression among adolescent may become one of the top public health issues in near future. With limited counselling and psychological services available, school administrators and public health officers should take into account these factors in planning early detection and intervention programs.

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