Prevalence of anxiety and its association with socio-demographic factors among secondary school students in Pasir Gudang district, Johor

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ABSTRACT

Background: Anxiety disorders are among the most common mental and emotional problems of adolescence, and may also result in behavioural problems. This study was conducted to determine the prevalence of anxiety among secondary school students in an urban district in Malaysia.

Materials and Methods: A cross sectional study was conducted among 1486 Form1, 2 and 4 secondary school students from ten randomly selected schools in Pasir Gudang District, Johor.

Result: A total of 1486 out of 2924 respondents were found to have anxiety, giving a prevalence of 50.8%. From the main socio-demographic factors studied age was found to be a predictor of anxiety among the adolescents in this study.

Conclusion: The high risk group identified in this study (adolescents aged between 13 to 15 years old) should be given due attention and further in-depth qualitative studies should be conducted in these groups to correctly identify their needs and concerns.

Keywords: Anxiety, Prevalence, Predictors, Adolescents, Urban-poor
1.0 Introduction

Approximately 20% of adolescents will have a mental health problem, normally depression or anxiety in any particular year. Those who had experienced violence, embarrassment, depreciation and poverty have increased risk of mental health problems (WHO., 2013). Anxiety disorders are among the most common mental and emotional problems of adolescence, and may also result in behavioural problems.

There are many forms of anxiety; the common ones being generalized anxiety disorder (GAD), panic disorder, post-traumatic stress disorder (PTSD), and social phobia (Spitzer et al., 2006). There are also other forms of anxiety disorders, such as specific phobia, obsessive compulsive disorder (OCD) and hypochondriasis. However, the symptoms of anxiety can be generally characterized as a feeling of panic, fear and uneasiness, uncontrollable, obsessive thoughts, nightmare, sleeping problems and muscle tension (America Psychiatric Association (APA)., 2013).

Adolescence is a stage where there are many changes; physical and emotional (Hofstra et al., 2002). It is a period of gradual transition from childhood to adulthood. The process of growing up is complicated and challenging, and adolescents are faced with many expectations, responsibilities, influences and uncertainties during this phase (Healy., 2009). Adolescents are prone to some forms of anxiety, especially in families with lots of stressors. It has been found that most adolescents suffer from anxiety when their parents also have the symptoms. The higher level of parenting stress in mothers and fathers predicted higher scores of child anxiety. In other words, both parents’ stress may lead to development of child anxiety (Pahl et al., 2012).

The most common form of anxiety disorder in the community is GAD. Therefore, the Fourth Malaysian National Healths and Morbidity Survey 2011 (NMHS IV) determined the prevalence of GAD in community households using the Mini International Neuropsychiatry Inventory (MINI) and found that the prevalence of GAD was 1.7% (Institute of Public Health., 2011). High risk groups for GAD were identified among respondents aged 16 to 24 years old, females, Indians, those living in urban areas, those with tertiary education, and a monthly income of RM2,000 to RM2,999.

The latest Diagnostic and Statistical Manual of Mental Disorders (DSM-5) showed that the 12-month prevalence of separation anxiety disorder among United States adolescents was 1.6%. This disorder was found to be higher in females compared to males in the general population. As for ethnic groups, Europeans appeared to be more prone to GAD compared to Asians or Africans. Individuals from developed countries were also noted to experience GAD more than individuals from non-developed countries (America Psychiatric Association (APA)., 2013).

A study on 2184 adolescents aged from 11 to 18 years old who attended preventive well-child visits in pediatric and family medicine primary care practices in northern New England, found that substance use, stress, anger, trouble sleeping and females were significant predictors for anxiety, while having parents who listen was a significant protective factor for anxiety (Dumont et al., 2012).
This study was conducted among adolescents in a low socioeconomic urban district in Johor, Malaysia. In view of socioeconomic problems such as low income and urban residence, this study was conducted among adolescents attending secondary government schools to determine the prevalence of anxiety and its association with age and gender.

2.0 Materials and Methods

2.1 Study Location

A cross sectional study was carried out to determine the prevalence of secondary school students with conduct problems, depression and anxiety. The study was conducted in ten randomly selected secondary schools in Pasir Gudang District, Johor. The study population was all secondary school students (Form1, 2 & 4) from the selected schools.

2.2 Sampling Method

A multistage cluster sampling method was used in the study. A total number of 3000 students from 10 schools were selected based on the sample size estimation (Lwanga et al., 1991). The students were selected according to cluster of classes that were randomly chosen by the school authorities in view of logistic reasons. The inclusion criteria were all Form 1, 2 and 4 students who consented to the study, while those who were absent on the day of data collection were excluded from the study.

2.3 Data collection

The duration of data collection was 3 months in the year 2012. Data were collected using a set of self-administered, validated and pretested Bahasa Malaysia version questionnaire.

2.4 Study Instruments

The questionnaire consisted of questions on socio-demographic information such as age and gender. The Depression, Anxiety and Stress Scale (DASS-12) were used to determine anxiety in this study (Zubaidah et al., 2014). The DASS-12 was developed from the Malaysian Adapted Depression, Anxiety and Stress Scale-21 (DASS-21)(Ramli et al., 2007).

The DASS-12 removed items 5,8,9,11,12,13,15,16 and 20 from the DASS-21; but maintained items 3, 10, 17 and 21 for depression; items 2, 4, 7 and 19 for anxiety; and items 1,6,14 and 18 for stress. This new version of the 12-item DASS was developed for adolescents in Malaysia and has a stable factor structure, and is a useful instrument for distinguishing between depression, anxiety and stress among adolescents. The reliability of each subscale was adequate using Cronbach’s alpha (Total = 76; Depression =0.68, Anxiety=0.53; Stress=0.52).
2.5 Data analysis

Data were collected and entered manually into the statistical computer software of SPSS version 19. Chi square test was used to determine the association between respondents’ socio-demographic variables and anxiety. Independent t and ANOVA tests were used to compare scores of anxiety between two or more groups respectively. Logistic regression was used to determine whether the socio-demographic factors were predictors of anxiety. Any significant association was based on a p-value < 0.05, and 95% Confidence Interval (CI). Adjusted odds ratio (AOR) was used to examine the risk association between the socio-demographic factors and anxiety.

3.0 Result

3.1 Respondent rate

Out of 3000 respondents, 2924 completed the questionnaire giving a response rate of 97.5%.

3.2 Prevalence of anxiety and relationship with socio-demographic

A total of 1486 respondents were found to have anxiety, giving a prevalence of 50.8%. Table 1 shows the number and percentage of anxiety according to the socio-demographic factors studied.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency, n (Percentage, %)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anxiety</td>
<td>No anxiety</td>
</tr>
<tr>
<td>Age group (years)</td>
<td></td>
<td>----------------------</td>
</tr>
<tr>
<td>13 – 15</td>
<td>1000(52.1)</td>
<td>920(47.9)</td>
</tr>
<tr>
<td>16 – 17</td>
<td>486(48.4)</td>
<td>518(51.6)</td>
</tr>
<tr>
<td>Total</td>
<td>1486(50.8)</td>
<td>1438(49.2)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td>----------------------</td>
</tr>
<tr>
<td>Male</td>
<td>680(49.7)</td>
<td>688(50.3)</td>
</tr>
<tr>
<td>Female</td>
<td>806(51.8)</td>
<td>750(48.2)</td>
</tr>
<tr>
<td>Total</td>
<td>1486(50.8)</td>
<td>1438(49.2)</td>
</tr>
</tbody>
</table>

There was a significant association between age and anxiety among the respondents (p<0.05). However, there was no significant association between gender and anxiety among the
respondents (p>0.05). Table 2 shows the logistic regression analysis for predicting variables for anxiety. The result showed that aged between 13 to 15 years adolescents had 1.17 times the risk of anxiety compared to the 16 -17 years old (OR 1.17, 95% CI 1.005-1.366)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency, n(Percentage, %)</th>
<th>OR</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
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<tbody>
<tr>
<td>1. Age group</td>
<td></td>
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<tr>
<td>13-15 years old</td>
<td>1000(52.1)</td>
<td>1.172</td>
<td>1.005-1.366</td>
<td>0.043*</td>
</tr>
<tr>
<td>16-17 years old</td>
<td>486(48.4)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1486(50.8)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>680(49.7)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>806(51.8)</td>
<td>1.089</td>
<td>0.941-1.260</td>
<td>0.253</td>
</tr>
<tr>
<td>Total</td>
<td>1486(50.8)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Logistic Regression Analysis of Variables for anxiety

4.0 Discussion

4.1 Prevalence of Anxiety

The World Health Organization (WHO) defined adolescence as between the ages of 10 and 19. It also stated that health risks in adolescence are more social in origin than medical (WHO., 2013). In view of this, the investigators expected a high prevalence of anxiety in this study as it was conducted in a low socioeconomic area. However, the findings in this study revealed a much higher prevalence of anxiety than expected, which was 50.8%.

This result is far higher than a recent study by the Institute of Public Health Malaysia among 106 adolescents. Twenty-three (21.7%) respondents were found to have anxiety using the Adolescent Health Screening Form “Borang Saringan Kesihatan Remaja” which was being validated in the study (Ahmad et al., 2011). An epidemiological study of mental disorders among high-school students in Iran found that the prevalence of anxiety disorders was 8.6%. This study used the affective and schizophrenia questionnaire (SADA) (Hosseini-fard et al., 2005). While it is noted that the studies mentioned here used different questionnaires to determine anxiety in their study population, the high prevalence of 50.8% means that more than half of the adolescents in this study have anxiety, and this is a cause of concern which needs to be further investigated and managed.

Anxiety in this study was determined using the 12-item DASS-12 which was developed from the 21-item DASS-21 (Zubaidah et al., 2014; Ramli et al., 2007). The DASS-21 was initially
used to determine psychological status among school children in Malaysia. However a validation study by Hashim et al among 750 Malaysian adolescents in the east coast of Malaysia found that further refinement of the DASS-21 was necessary, when used among adolescents. Confirmatory factor analysis (CFA) revealed a weak support for DASS-21 as a differentiated measure of depression, anxiety and stress in Malaysian adolescents (Hashim et al., 2011). Therefore, the DASS-12 was developed as it was found to have stable factorial validity, adequate reliability and validity measures among adolescents in clinical or research assessments and treatment outcome measures avenues (Zubaidah et al., 2014).

4.2 Predictors of Anxiety

Among the socio-demographic factors investigated in this study, age was found to be significantly associated with anxiety.

Respondents aged between 13 to 15 years old had a significantly higher prevalence of anxiety (52.1%) compared to those aged between 16 to 17 years old (48.4%) in this study. This finding also warrants further investigation as it shows that the younger age group is more prone to anxiety, and these young adolescents may need more support to address their problems.

The Malaysian National Health and Morbidity Surveys (NHMS) found that the prevalence of emotional disorders among children and adolescents increased from 13.0% in 1996 (NHMS II)(Institute of Public Health, 1999) to 20.3% in 2006 (NHMS III)(Institute of Public Health., 2008). The NHMS III also found that the prevalence of suicidal ideation was 6.4% in the Malaysian community, with the highest risk among youths aged 16-24 years old, the unmarried and the unemployed (Institute of Public Health., 2008). Although anxiety is usually not a cause of suicide, but it is frequently associated with depression, especially in those with major depression (Fawcett et al., 1983). Anxiety or depression elevations might increase the frequency of suicidal thoughts. Therefore comorbid anxiety and depression suggest an additional risk to suicide (Norton et al., 2008).

In view of this, the findings of this study should be given appropriate attention. The main strength of this study is that it was conducted in a large sample of adolescents (N=2980). The study population was from 10 selected secondary schools representative of the adolescents attending government secondary schools in the selected district.

The limitation is that the study was conducted in one district only, and therefore the findings cannot be generalized to different areas with populations of different socioeconomic status. However, the findings of this study are still relevant to areas of similar socioeconomic status in Malaysia, mainly the urban poor districts.

5.0 Conclusion and recommendation

The areas of concern which need to be addressed are the high prevalence of anxiety in this population, and its predictors which is age. The high risk group identified in this study (adolescents aged between 13 to 15 years old) should be given due attention, and further in-
depth qualitative studies should be conducted in these groups to correctly identify their needs and concerns.

Acknowledgement

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Declaration

The authors declare no conflict of interest.

Ethical consideration

Ethical clearance was obtained from the Medical Research Ethics Committee of the Faculty of Medicine and Health Sciences, University Putra Malaysia (Reference no. UPM/FPSK/100-9/2-MJKEticaPen (SPP3621(U)_April(12)08) and respondents’ consent were asked.

Authors’ contribution

Author 1: Project Principal Investigator, Grant Application, Study design, Data collection, analysis, Field Coordinator, Quality Control and wrote manuscript, Author 2: study design and wrote manuscript, Author 3: Study design. Author 4: Study design, Author 5: Data collection.
References


