Evaluating the Relationship between Gender, Age, Depression and Academic Performance among Adolescents

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Depression is said to have a relationship with academic performance. Thus, the purpose of the study was to investigate the relationship between age, depression and academic performance among adolescents. The study was carried out among 1200 students (600 male and 600 female) in the age range 15-19 years. The instrument used for data collection was the Beck depression Inventory (21 item BDI). The analysis of data used correlation coefficient and t-test. The results showed that 26.5% of the boys and 30.7% of the girls were depressed and that depression and academic performance were significantly correlated, r = -0.24, p≤0.000. Also, based on results of the present study, age and academic performance were significantly correlated (r = 0.25, p≤0.000). In addition there was significant difference of academic performance between male and female, (t (1) = -5.51, p = 0.000). It is recommended that along with academic performance, mental health be developed in school settings using support strategies such as educational guidance and counseling, teaching life skill programs and psychotherapy.

Key words: Depression, academic performance, age and gender, Adolescents

INTRODUCTION

Education is an essential tool for development in every country of the world, and Nigeria is not an exception; a strong and effective education can help boost the development of the country. However, academic failure is one of the major problems the families, society and government experience.

Furthermore, the rate of academic failure among high schools students is high in Nigeria (see WAEC and NECO results). For instance, Amin Far (2002) found that 65 percent of students (girls) from rural areas and 34 percent of students (boys) from urban areas experience academic failure. In the same vein, the Education Organization of Sanandaj (2007) reported 27 percent of high school students have academic problems. Also, 28 percent, 27 percent and 11.55 percent of them in first grade, second grade, and third grade respectively had dropped out of school. In addition, Hamidian (2006) indicated that USD 50 million is needed to solve academic failure in western Azerbaijan Province in Iran.

Many factors affect academic achievement. One of them is depression. Depression has a high prevalence and relationship with both memory and academic achievement. Depression indices are: persistent sadness, discouragement, loss of self-worth and interest in daily activities. True depression in teens is often difficult to diagnose because normal adolescent behavior is marked by both up and down moods. These moods may alternate over a period of hours or days. Depression has an effect on academic achievement. Research has indicated that depressed mood is negatively related to academic achievement.

Lifetime depression rates rise to 14% for adolescents’ ages 15 to 18 from an average of less than 3% in childhood (Lewinsohn, Rohde, and Seeley, 1998). At any given point in time, 3% to 8% of adolescents face major depressive disorder (MDD), making it more common than asthma and most other chronic medical problems of this age group (Jackson, and Lurie, 2006). In addition, depressed youth are at risk for many co-morbidities, including conduct problems, personality disorders, substance abuse, obesity, interpersonal conflict, unfulfilling social relationships, and educational and occupational underachievement (Zalsman, Brent, and Weersing, 2006).
The next two decades may witness world-wide changes in the epidemiological pattern of diseases. Communicable diseases such as mental disorders may replace infectious and communicable diseases as the leading factor in disability and premature death. Already there are around 52 million people in the world suffering from severe mental health disorders such as schizophrenia, while 150 million have mild mental disorders such as depression and anxiety, 120 million people have mental retardation, 50 million epilepsy and 30 million have dementias Modabber-Nia et al. (2007).

According to American Psychiatric Association (2009), mood refers to a sustained emotion that colour the way people view life. Recognizing mood disorders is important, because as many as 20% women and 10% men may have one. Their prevalence seems to be increasing in both sexes and they account for as much as 50% of a typical mental health practice.

**Depression among adolescents**

It was estimated that 14 percent of the adolescents aged 12 to 17 (approximately 3.5 million adolescents) had a major depressive episode (MDE) in their lifetime, and an estimated of 9.0 percent (2.2 million adolescents) experienced at least one MDE in the past year. American adolescents aged 16 or 17 were more than twice as likely to report past year MDE as compared to those aged 12 or 13 (12.3 % vs. 5.4 % ) in 2004 (Hallfors, Waller, Bauer, Ford and Halpern, 2005; Rockville, 2005) It is important to realize that many factors such as cultural, location, and samples differences are related to prevalence of depression. A piece of research which used Beck’s depression questionnaire found that 34 percent of the respondents suffered from depression among 4020 high school students in Rasht, north of Iran (Modabber-Nia et al., 2006). Hossaini and Mousavi (2004) found that 44.3 percent of the high school students, and Masood Zadeh (2002) found that 39.1 percent of high school students in Iran had depression. Also, Ghahari (2004) reported that 27 percent of students were depressed in Iran .While, Frojd, Nissinen and Pelkonen et al. (2008) indicated that the rate of depression among American adolescents were 18.4 percent for girls and 11.1 for percent boys.

One of the mental disorders which have a particularly high prevalence is depression. Based on WHO information cited in Modabber-Nia et al. (2007), depressive disorders are the fourth leading health problem in the world. This suggests that depressive disorders may become the second most disabling disease of mankind by the year 2020. Also, Khayerabadi and Yousefi (2000) reported that 35.7% of Kurdistan population with above 15 years age has depression.

Physical signs of depression in adolescents include appearance and hygiene neglect, pale and tired appearance, sad or irritable affect, psychomotor retardation or agitation, impaired concentration, and diminished abstract reasoning ability for their age (Jeffrey et al., 2005). The primary care provider should be familiar with the components of the mental status examination and document appropriately (Jeffrey, et al., 2005).

Mild episodes are characterized by the presence of only five or six depressive symptoms, and either mild disability or the capacity to function normally but with substantial and unusual effort. MDD without psychotic features are characterized by the presence of most criteria symptoms and observable inability to function. Moderate episodes have a severity between mild and severe (APA, 2000). Atypical presentation of MDD may include increased reactivity to rejection, lethargy, increased appetite, cravings for carbohydrates, and hypersonnia (Williamson et al., 2000).

Adolescents with MDD tend to display more sleep and appetite disturbances, delusions, suicidal ideation and attempts, and impairment of functioning than younger children, but more behavioral problems and fewer neurovegetative symptoms than adults with MDD (AACAP, 1998). Gender differences have also been determined. Bailey, Zauszniekiwski, Heinzer, and Hemstrom-Kraineness (2007) found that girls trend toward more severe depression on negative mood scales, anhedonia, and negative self-esteem scales, while boys trend toward more interpersonal problems. Parents often report externalizing symptoms, such as irritability, moodiness, whininess, and loss of interest, while adolescents when questioned report internalizing symptoms, such as sadness, suicidal thoughts, and sleep disturbances not apparent to parents (Jeffrey et al., 2005).

Adolescent depression, a disorder occurring during the teenage years, is marked by persistent sadness, discouragement, loss of self-worth and interest in daily activities. True depression in teens is often difficult to diagnose because normal adolescent behavior is marked by both up and down moods due to the hormonal changes teens experience (Mackenzie et al., 2001). Hallfors et al. (2005); who were responsible for the National Survey on Drug Use and Health in Research Triangle Park, North Carolina, estimated that 14% of adolescents aged 12-17 (approximately 3.5 million adolescents) had experienced at least one Major Depressive Episode (MDE) in their lifetime and that 9.0% (2.2 million adolescents) had also experienced at least one MDE in the past one year. Adolescents aged 16 or 17 had more depression in the past year compared with adolescents aged 12 or 13 (12.3 Vs 5.4%).

Adolescents with depression often present with psychosomatic complaints, such as headaches, stomachaches, and other vague physical complaints without a definable cause (Richardson and Katzenellenbogen, 2005). In some cases, a pattern of somatic symptoms may emerge, such as symptoms that increase before the start of the school day (Richardson and Katzenellenbogen, 2005). These symptoms may not
initially be recognized as psychosomatic and only after repeated presentation with negative physical or laboratory findings is recognized as possible symptoms of depression or anxiety. A complete and sensitive history of complaints and other life issues is necessary to establish the possible connection between the physical complaint and mental illness.

Yet others have noted a depression rate of 34% amongst adolescents (Modabber-Nia et al., 2007; Moritz et al., 2003; Winter and Bowers, 2007). Modabber-Nia et al. (2007), in their study on depression in Iran, indicated that 34% of high school students suffered from depression. According to their findings, 25% of male and 39% of female students had depressive symptoms. Hosseini and Mousavi (2004) found that 44.3% of students in Iran had depression. By comparison, Hosseini and Mousavi (2004) showed 10.5% of respondents had mental disorders, especially depression, Masood Zadeh (2002) showed 39.1% of high school students had depression and Khayerabadi and Yousefi (2000) found 35.7% of Kurdistan people had dental problems. In addition, Sharifi (2001) showed 46% of high school students had depression in a study done in Sanandaj City, Iran. While, Tavakeli (2000) found 17% of high school students had severe depression, 30% had moderate depression and 35% of those respondents had mild depression in Kurdistan.

**Depression, memory and academic achievement**

From his research, Airaksinen, Wahlin, Forsell and Larsson (2006) found that depression has an impact on memory performance among respondents. Moreover, Pine, Lissek, Klein et al. (2004) indicated that there were significant relationships between memory performance, age and gender. Data from their study showed that there were associations between memory performance and major depression [F (2,351) = 3.3; p < .05], mean that depression significantly decreased memory performance. Furthermore, Park, Goodyear and Teasle (2002) found that depression affected and impaired the memory capacity among adolescents. In addition, Mowla, Ashkani, Ghanizadeh, Dehbozorgi, Sabayan and Choherdri (2007) showed that memory performance, through subtests of the Wechsler Memory Scale-III, was related to depression. In addition, Torzandjani (2006) found that depression impacted on sub-divisions of memory such as mind control, visual memory and learning of association. It means that depression impairs attention and concentration. To elaborate this process, information processing theory (Atkinson and Schifrin, 1968) is employed to explain the effect of depression on memory.

According this theory, when concentration and attention are impaired, short term memory could not transfer information to long term memory. As mentioned above, depression prevents the transferring of information from short-term memory to long-term memory. In other words, for transformation of information from short-term memory to long-term memory; students must focus attention and concentration. At this stage, depression disrupt this process, and therefore, memory is impaired due to inability to memorize and recall the information (Eggen and Kauchak, 2004).

So, Sharifi (2001) indicated that 17, 44 and 17% of high school students in Sanandaj were severe, moderate and mild depression respectively. As mentioned above, depression affects academic achievement. According to Chen and Li (2000), adolescents with depression are vulnerable to educational underachievement (Osiki and Busari 2002). Also, using information based on a resource allocation model of the effect of a depressed mood on cognition, students with symptoms of depression are predisposed to focus their attention on interfering, irrelevant thoughts, leaving little sustained attention available for cognitive tasks which then leads to academic failure (Busari and Uwakwe 2001). For example, Frojd et al. (2008) reported that depression impair cognitive functioning and blocks cognitive sources and many of the academic performance and also homework depend on the ability to sustain attention and concentration (Busari and Eniola 2008). Thus depression, which is known to disrupt concentration and attention in school, is likely to undermine academic performance. Research indicates, then, that a depressed mood is negatively related to academic performance.

Cognitive risk factors for depression in adolescents include elevated levels of anxiety, low self-esteem, high self-criticism, cognitive distortions, poor school performance, and social skill deficits (Beasly and Beardslee, 1998). Adolescents with negative cognitive styles have a distorted view of themselves, the world, and the future, resulting in risk for MDD. They tend to feel responsible for any negative events in their life, resulting in hopelessness and depression during negative life events, such as rejection, perceived failure, or personal loss (Jeffrey, Sava, and Winters, 2005).

Moreover, depressed people with and without memory complaints had lower scores on the Wechsler Memory Scale-III than the control group. Furthermore, Roping and Cogin (1993) found that depression has an impact on memory dysfunction, especially in older adults.

Similarly, An de Decker, Hermans, Raes and Eelen (2003) showed that depression, anxiety, worry, hopelessness, or subjective stress, were significantly related to the retrieval of specific memories. Also, Afshar (2004) found that mean of memory which was measured by Wechsler Memory Scale—3rd Editions (WMS-III) in depressed, Alzheimer and normal groups was 47, 37 and 55 respectively.

Meanwhile, Annett, Bender, and Gordon (2007), in their study among 939 children with 6-12 years old without neuropsychological problems in America, found that...
memory was strongly related to academic achievement \((p \leq .001)\). Moreover, Wilding, Andrews and Heidelberg (2007), in their study among 90 undergraduate students in United Kingdom, found that there were correlations between working memory and second year examination performance. In addition, in their study with 199 elementary students at USA; Wintre and Colleen, (2007); Newman, Griffen, O’Connor and Spas (2007), reported that depression was related to academic achievement. Fergusson and Horwood (1997) in their study with 1000 respondents between 8-18 years old in New Zealand reported that there were differences of school achievement between male and female, mean that, males having lower scores than females in all standardized tests. Linver et al. (2002) in their study with 1821 respondents among adolescents from USA, found that girls have slightly higher grades than boys. Furthermore, Anne-Rampacher and Peterson (1999) showed that age has impact on academic achievement among students. Many researchers have witnessed tremendous academic failures among the students in Nigeria and some have tried to find the reasons behind the alarming rate of failures. Searching to identify the variables related to the causes of this problem. The major purpose of this current study was to investigate the relationship between depression and academic achievements in adolescents. This research was different from other studies conducted before, as it linked academic performance, depression and adolescents.

MATERIALS AND METHODS

Participants

The current study utilized stratified random sampling techniques to select 1200 adolescent students (600 male and 600 female in the range of 15-19 years). The population in the current study comprised of two numbers of subgroups, particularly gender and age. The procedure for choosing the total number of participants after screening for signs of depression involved three stages:

- Twenty-one public high schools and pre-degree schools were selected from among a number of high schools and pre-degree schools having adolescent students in three state capitals in the South Western Nigeria (Ibadan, Oshogbo, Abeokuta) by simple random sampling
- The total number of students according to their age and gender was determined and then by ratio formula in each of the high schools and pre-university schools the number of samples was selected. Then, the actual respondents were selected by simple random sampling
- The two subgroups (age groups and gender) were combined into the overall samples

Measure

Depression was measured using the responses to the beck depression inventory. The respondents of the study were asked to answer each of the questions expressing their current feeling.

The internal consistency for the BDI ranges from 0.79-0.95 with a mean of 0.86 (Beck et al., 1988). Similar reliabilities have been found for the 13 item short form (Groth-Marnat, 2003). The BDI demonstrates high internal consistency with an alpha co-efficient of 0.86 and 0.81 for psychiatric and non-psychiatric populations respectively (Beck et al., 1988).

The BDI was adapted for Nigerian culture. According to Modabber-Nia et al. (2007) and Beck et al. (1988) standardized questionnaire scores are defined as follows:

- Symptom-free or normal (0-15)
- Mild depression (16-30)
- Moderate depression (31-46)
- Severe depression (47-63)

The instrument was used to screen the participants to ascertain the level of sign and symptoms of depression in them. Based on the rules of the Ministry of Education in Nigeria, the range of academic performance is from 0-100 and includes 4 parts. From 0-39 is considered fail that is if a Nigerian student gets this range of score in any of the courses, she/he fails. A score of 40-49 is considered fair while score of 50-69 is considered good and a score of 70 and above is considered excellent.

Statistic Analysis

A descriptive statistical analysis (frequency, percentage, means and standard deviations) was done to characterize the depression, academic achievement and gender. A Pearson correlation was calculated to evaluate the level of significance of the relationship between the depression score and academic achievement and also the Pearson correlation was used to determine the significance of the relationship between age and academic performance. In addition, a T-test was done to test the relationship between gender and academic performance which means that academic performance was used as an interval variable not a category and also t-test was conducted to test gender with depression.

RESULTS

Table 1 show that the number of the respondents in the current study includes 600 (50%) males and 600 (50%)
Table 1: Academic Performance by Target Variables Among Respondents

<table>
<thead>
<tr>
<th>Depression</th>
<th>≤ 39</th>
<th>40 - 49</th>
<th>50 - 69</th>
<th>≥ 70</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Normal (0-15)</td>
<td>20</td>
<td>1.7</td>
<td>320</td>
<td>26.7</td>
<td>217</td>
</tr>
<tr>
<td>Mild (16-30)</td>
<td>42</td>
<td>3.5</td>
<td>147</td>
<td>12.3</td>
<td>78</td>
</tr>
<tr>
<td>Moderate (31-46)</td>
<td>8</td>
<td>0.7</td>
<td>21</td>
<td>1.75</td>
<td>6</td>
</tr>
<tr>
<td>Severe (47-63)</td>
<td>0</td>
<td>0.0</td>
<td>28</td>
<td>2.3</td>
<td>3</td>
</tr>
</tbody>
</table>

Age Group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>15 – 16</th>
<th>17 – 18</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>0</td>
<td>9</td>
<td>27</td>
</tr>
<tr>
<td>%</td>
<td>0.0</td>
<td>0.75</td>
<td>2.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>30</td>
<td>6</td>
</tr>
<tr>
<td>%</td>
<td>5.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Depression and academic achievement were found to be significantly correlated (r = 0.25, p≤0.001), therefore there was a significant relationship between depression and academic achievement.

Table 2: Pearson Correlation between Depression and Academic Performance (n = 1200)

<table>
<thead>
<tr>
<th>Variables</th>
<th>r</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>-0.24**</td>
<td>0.000</td>
</tr>
<tr>
<td>Age</td>
<td>0.25**</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note p ≤ 0.01

Table 3: T-test of Academic Performance between male and female

<table>
<thead>
<tr>
<th>Gender</th>
<th>Mean</th>
<th>Sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>16.45</td>
<td>2.51</td>
<td>-5.51</td>
<td>0.000</td>
</tr>
<tr>
<td>Female</td>
<td>17.73</td>
<td>2.23</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: p ≤ 0.01

In addition, the data showed that age and academic achievement were significantly correlated (r = 0.23, p≤0.000), therefore there was a significant relationship between age and academic achievement among the respondents.

In order to display the significant difference between the factor of gender and the respondents’ academic achievement, a t-test was run. Females (M = 17.73, SD = 2.23) reported significantly higher academic achievement than males (M = 16.45, SD = 2.51), (t (1) = -5.51, p = 0.000) (Table 3). There was a remarkable difference at the 0.05 level of significance, determining that there is a statistically significant difference between the mean of the two groups and their academic achievement. Evidently, there was significant difference of academic achievement gender respondents.

DISCUSSION

Forty three point eight and 5.8% of respondents in the current study were weak and fail respectively in 2008,
Results of the current study differed from the findings of Daskzan (2004); Mozaffari (2001) and Nosrati Shoar (2003). The discrepancy may be related to such matters as different sample size and motivation of students to study.

The results from the present study showed depression affects academic performance \( r = 0.25, p \leq 0.000 \). These findings confirm other findings reported in the literature that shows adolescents with depression being vulnerable to educational underachievement. Also, based on a resource allocation model of the effect of depressed mood on cognition, it has been found that students with symptoms of depression are predisposed to focusing their attention on interfering, irrelevant thoughts, leaving little sustained attention available for cognitive tasks, which then leads to academic failure. As many of the school activities and homework depend on the ability to sustain attention and concentration, depression, which disrupts concentration and attention in school, is likely to undermine academic performance. Also, research has indicated that depressed mood is negatively related to academic performance (Chen et al., 2000).

Depression is one of the mental disorders which cause many problems for society, especially depression in high school students. The current study showed that a little above 30% of respondents were depressed. This result, however, contradicts the results from other research, for instance that of Hallfors et al. (2005) and the 2004 National Survey on Drug Use and Health, in which it was estimated that 14% of adolescents aged 12-17 had experienced at least MDE in their lifetime and an estimated 9.0% of them had experienced at least one MDE in the past year. Adolescents aged 16 or 17 were more than twice as likely to report earlier MDE compared to those aged 12 or 13 (12.3 Vs 5.4%). The results of the current study, also, differ from those of Modabber-Nia et al. (2006); Hosseini and Mousavi (2004); Masood Zadeh (2002), who indicated that 34, 44.3 and 39.1% of high schools’ students in Iran had depression, respectively. The discrepancy may be related to using different tools for measurement of depression, different sample sizes, the motivation of respondents to responding and the subjects’ lifestyle.

Cultural differences relating to psychosocial stress and the different understanding and use of concepts such as self evaluation, social self-confidence and adaptive behavioral styles (Modabber-Nia et al., 2007). It also, may be related to the type of thoughts the adolescent respondents had regarding the self and the world. For example, based on the Beck et al. (1988) depression theory, a negative view about oneself, the future and the world leads to low self-esteem, hopelessness and depression.

The results from the present study indicated that age and depression achievement were significantly correlated \( r = 0.25, p \leq 0.000 \) and this finding is in agreement with that of Anne-Rampacher and Peterson (1999), who reported that there is a significant difference between age subgroups and academic achievement.

Results of the current study showed that there is a significant difference between gender and academic performance. This finding corroborates that of Ferguson and Horwood (1997) and Linver et al. (2002). They emphasized gender effect on academic performance among adolescents.

**CONCLUSION**

Depression was found to have serious effects on academic performance among adolescents. It decreased academic achievement. It could also decrease motivation in ability attention, concentration and leads to academic failure. These study have provided evidence of a relationship between depression and academic performance among secondary school adolescents. It is therefore suggested that counselors in the secondary schools should make it a point of duty to introduce preventive activities such as guidance to prevent occurrence of depression, counseling to ameliorate the level of depression in already depressed students and teach life skills and other therapeutic techniques could improve academic performance and to reduce the effects depression is likely to have on academic performance of the youths.

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