PSYCHOLOGICAL VARIABLES AS CORRELATES OF DYSLEXIA AMONG SECONDARY SCHOOL ADOLESCENTS IN RIVERS STATE

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Abstract

The study investigated psychological variables as correlates of dyslexia among secondary school adolescents in Rivers State.The study adopted the correlational research design. Three research questions as well as three corresponding hypotheses were formulated and used for the study. The sample for the study was 136 dyslexic secondary school students who were selected using purposive sampling technique. Two instruments were adapted and used for this study. They included Adolescent Dyslexia Scale (ADS), and General Psychosocial Inventory (GPI). The General Psychosocial Inventory (GPI) consisted of Self-Efficacy Scale, Beck's Depression Inventory, and Reading Anxiety Scale.The reliability coefficients obtained were 0.97, 0.76, and 0.90 respectively.T-test associated with Regression analysis was used to answer the research questions while analysis of variance associated with regression were used to test the hypotheses. The findings of the study revealed that reading anxiety and depression significantly relates to dyslexia whereas self-efficacy did not. Based on the findings, it was recommended among others that, teachers should make optimal use of meaningful learning materials in teaching as this will enhance intrinsic motivation in dyslexics and make learning more interesting. Moreso, workshops on dyslexic children needs to be held among school teachers in Nigeria to help them understand these unique students the more and thus modify their learning needs appropriately.

Key words;Reading Anxiety, Self-Efficacy, Depression and Dyslexia

Introduction

Proficient reading is an essential tool for learning a large part of the subject matter taught at school. With increasing emphasis on education and literacy, more and more children and adults need help in learning to read, spell, express their thoughts on paper and acquire adequate use of grammar (American Psychiatric Association, 2000). Reading disorders occur when a person has trouble with any part of the reading process (word pronunciation, spelling and

comprehension). Reading and language-based learning disabilities are commonly 0result from specific differences in the way the brain processes language. Reading disorder is a learning disorder that involves significant impairment of reading accuracy, speed, or comprehension to the extent that the impairment interferes with academic achievement or activities of daily life (Hales, Stuart & John, 2000). People with reading disorder perform reading tasks well below the level one would expect on the basis of their general intelligence, educational opportunities, and physical health. Reading disorder is most commonly called dyslexia. Dyslexia, however, usually includes deficits in spelling and writing as well as reading. The degree of difficulty a child with dyslexia has with reading, spelling, and/or speaking varies from person to person due to inherited differences in brain development, as well as the type of teaching the person receives. The brain is normal, often very "intelligent," but with strengths in areas other than the language area. This "difference" goes undetected until the person finds difficulty when learning to read and write. Dyslexia is characterized by an unexpected difficulty in reading among children and adults who possess the intelligence, motivation and education considered necessary for accurate and fluent reading (Lagae, 2008). It is characterized by difficulties with accurate and/or fluent word recognition, poor spelling; poor decoding abilities and often persists into adulthood.

The diagnostic criteria for dyslexia, according to the Diagnostic Statistical Manual IV (2000) are as follows: reading achievement, as measured by individually administered standardized tests of reading accuracy or comprehension, substantially below that expected given the person's chronological age, measured intelligence, and age-appropriate education, secondly, the disturbance significantly interferes with academic achievement or activities of daily living that require reading skills and finally, if a sensory deficit is present, the reading difficulties are in excess of those usually associated with it. Common characteristics of dyslexia include but not limited to the following: often gifted and creative, difficulty rhyming words and sounds, poor sequencing of numbers for example, (12 for 21) and words (was for saw), poor spelling, avoids reading aloud, difficulty organizing ideas to speak or write, avoids writing tasks, left/right confusion, slow to memorize alphabet and math facts, reading comprehension difficulties, trouble following oral instructions and appearing restless or easily distracted (DSM IV, 2004). A

dyslexic child who finds the acquisition of reading literacy skills difficult can suffer a lot of anguish and trauma when they may feel mentally abused by their peers within the school environment, because they have a learning difficulty. Research suggests that there are some psychological correlates of dyslexia among secondary school adolescents, they include; reading anxiety, self-efficacy and depression.

Reading anxiety is among the frequent emotional symptoms reported by dyslexic adolescents. Zhou (2017) described reading anxiety as a type of anxiety that learners experience while they are reading. Reading anxiety could be caused by unfamiliar scripts, writing systems, or learners' unrealistic expectations that they should be able to understand everything they read (Saito, Horwitz & Garza, 1999).Willcutt, and Gaffney-Brown (2004) observed that dyslexic adolescents usually experience reading anxiety. Their reading anxiety develops as they have difficulties fitting in with the learning environment and expectations of teachers and parents. Dyslexic adolescents learn to respond anxiously in situations where they have failed in the past. They learn to anticipate failure and thus approach new situations with fear. They are constantly frustrated and faced with failure everyday at school. Dyslexic adolescents are always under constant stress as it takes them so much longer to master many basic skills in reading and writing. This increases fatigue making them more susceptible to anxiety (Carroll & Jane, 2006).

There are debates that self-efficacy may be linked to dyslexia among adolescents. Bandura (1997) maintained that among the mechanisms of human agency, none is more central or pervasive than people's belief in their efficacy to regulate their own functioning and to exercise control over events that affect their lives. Self-efficacy refers to beliefs in one's capabilities to produce given attainments and in school settings it is defined as a person's judgement of confidence to perform academic tasks or succeed in academic activities (Pajares& Graham, 1999). Self-efficacy deals primarily with the cognitively perceived capability of the self. Unless people believe they can produce desired effects by their actions, they have little incentive to act or to persevere in the face of difficulties (Bandura, Pastorelli, Barbaranelli & Caprara, 1999). High self-efficacy beliefs enhance students' academic achievement and personal well-being in many ways (Pajares & Graham, 1999). It influences the choices they make in deciding whether or how to act, the amount of effort they are prepared to invest in any activity, how

long they persevere when confronted by obstacles. A low sense of self-efficacy on the other hand, makes an individual fail to exercise control over things he values and can give rise to feelings of futility and despondency. Dyslexic students may be experiencing low self-efficacy in performing school assignments and participating in class for fear that they may be embarrassed (Huntington and William, 1993).

Depression is conceptualized as a state of mind producing serious mood swings, loss of interest or pleasure, decreased energy, feelings of guilt or low self-worth, disturbed sleep or appetite, and poor concentration (WHO, 2012). Dahle, Knivsberg and Andreassen (2011) explained that depression impacts by affecting the emotions, ways of thinking, behaviours, physiology and social relationships. It creeps up gradually and for a dyslexic person, who finds day to day living energetically demanding, these small changes may trigger a manifestation of depression and negative thoughts (Alexander-Passe, 2006). Edwards (1994) explained that such risk might be related to the individual's experiences of frequent poor academic performance, feelings of discrimination or rejection by significant others (e.g., peers and teachers), and/or being labelled "dyslexic". Dyslexics are often afraid to turn their feeling outwards towards their environment, instead they turn it inwards, toward themselves thus making them depressed and foreseeing a life of continuing failure (Alexander-Passe, 2006).

Dyslexia promote poor self-image, and peer rejection which will in turn lead to loneliness. It also leads to poor oral language functioning, and as such when they engage in oral presentation they stammer and pause regularly. Dyslexia leads to underachievement among students, which in turn affects the development of the society. Dyslexic adolescents who find the acquisition of literacy skills difficult suffer a lot of anguish and trauma especially when they are abused by their peers in the school, because they have a learning difficulty. This lead to their development of aggressive behaviour. Class teachers are particularly confused by students whose consistent poor achievements seem like what may be viewed as carelessness or lack of effort. Dyslexics sometimes feel very different from their peers because they are unable to follow simple instructions, which for others seem easy. Time and again, dyslexics and their parents hear, ''he is such a bright child, if only he would try harder''. Ironically, no one knows exactly how hard the dyslexic

is trying. Parents of dyslexics are bemused and frustrated by their child who orally seem intelligent but just cannot cope at school. It is against this general background that the researcher is motivated to examine psychological variables as correlates of dyslexia among secondary school adolescents in Rivers State.

Aim and Objectives of the Study

The aim of this study is to examine psychological variables as correlates of dyslexia among secondary school adolescents in Rivers State. Specifically, the study intends to achieve the following;

1. Find out the extent to which reading anxiety relates to dyslexia among secondary school adolescents in Rivers State.
2. Determine the extent to which self-efficacy relates to dyslexia among secondary school adolescents in Rivers State.
3. Determine the extent to which depression relates to dyslexia among secondary school adolescents in Rivers State.

Research Questions

To what extent does reading anxiety relate to dyslexia among secondary school adolescents in Rivers State?

2. To what extent does self-efficacy relate to dyslexia among secondary school adolescents in Rivers State?
3. To what extent to does depression relate to dyslexia among secondary school adolescents in Rivers State?

Hypotheses

1. There is no significant relationship between reading anxiety and dyslexia among secondary school adolescents in Rivers state.
2. There is no significant relationship between self-efficacy and dyslexia among secondary school adolescents in Rivers state.
3. There is no significant relationship between depression and dyslexia among secondary school adolescents in Rivers state.

Research Method and Procedures

The study adopted the correlational research design. The sample for the study was 136 dyslexic secondary school students who were selected using

purposive sampling technique. Two instruments were adapted and used for this study. They included Adolescent Dyslexia Scale (ADS), and General Psychosocial Inventory (GPI). The General Psychosocial Inventory (GPI) consisted of Self-Efficacy Scale, Beck's Depression Inventory, and Reading Anxiety Scale, designed on a 4 point Likert scale of Strongly Agree (SA) =4, Agree (A) =3, Disagree (D) =2, and Strongly Disagree (SD) =1. The reliability coefficients obtained were 0.97, 0.76, and 0.90 respectively. T-test associated with Regression analysis were used to answer the research questions while analysis of variance associated with regression were used to test the hypotheses.

Data Analysis

Research question 1: To what extent does reading anxiety relate to dyslexia among secondary school adolescents in Rivers State?

To answer this research question, simple linear regression was employed. To execute this, the scores of the students in reading anxiety was used as the predictor (independent) variable while their scores on dyslexia scale served as the criterion (dependent) variable. At the end of the analysis, the results obtained are presented in table 1.

Table 1: Summary of simple linear regression on the prediction of dyslexia on reading anxiety.

Explainable variable	R	R^2	Adjusted R^2	Std error of the estimate
Reading anxiety	0.627	0.393	0.388	10.15

Results in table 1 shows that simple correlation coefficient (R) obtained when reading anxiety predicted dyslexia was 0.627. it was also shown that the coefficient of determination (R^2) is 0.393 while the adjusted coefficient of determination (adjusted coefficient of determination (adj R^2) of 0.388, it is then deduced that reading anxiety can explain 38.8% of the changes in the dyslexia level of the students while the remaining 61.2% changes in the dyslexia level of the students are not explainable by the knowledge of their reading anxiety level.

Hypothesis One: There is no significant relationship between reading anxiety and dyslexia among secondary school adolescents in Rivers State.

Table 2: Showing t-test associated with simple linear regression on the relationship between reading anxiety and dyslexia.

Explainable variable	Unstandfardized coefficients		Standardized coefficient		
	B	Std. error	Beta	T	p-value
Constant	13.581	4.16		3.265	0.001
Reading anxiety	1.358	0.145	0.627	9.344	0.0005

Results in table 2 shows that the unstandardized regression coefficient (B) obtained are 13.581 and 1.358 respectively for constant and reading anxiety. Thus the model regression equation that will be used to predict dyslexia on reading anxiety is Y = 13.581 + 1.358x where Y^1 is the predicted value of dyslexia and x is any given score on reading anxiety.

It was also shown that the standardized regression coefficient (Beta) obtained for using reading anxiety to predict dyslexia among students is 0.627. Furthermore, when Beta value was tested for significance using associated t-test, it was observed that reading anxiety has large effect on dyslexia among students. Hence reading anxiety significantly predicted dyslexia among student. This is because the associated t-value 9.344 was obtained at a P-value of 0.0005 (P<0.05) which is less than 0.05 the chosen level of significance.

Research Question Two: To what extent does self-efficacy relate to dyslexia among secondary school adolescents in Rivers State?

This research question 2 was answered using simple linear regression analysis where scores in self-efficacy was the predictor (independent) variable while scores in dyslexia served as the criterion (dependent) variable. After the analysis, the results obtained are presented in table 3.

Table 3: Summary of simple regression on the prediction of dyslexia using self-efficacy.

Explainable variable	**R**	**R^2**	**Adjusted R^2**	**Std error of the estimate**
Self-efficacy	0.216	0.047	0.040	12.712

In table 4.3, it is shown that the simple correlation between self-efficacy and dyslexia (R) is 0.216, (R^2) IS 0.047 while the adjusted coefficient of determination (adj R^2) obtained is 0.040. Thus efficacy is accountable to only 4% of the changes in the dyslexia level of the students while the remaining 96% level of changes in the students' dyslexia cannot be explained by the knowledge of their self-efficacy.

Hypothesis Two: There is no significant relationship between self-efficacy and dyslexia among secondary school adolescents in Rivers State.

In testing hypothesis 2, t-test associated with simple linear regression analysis. The results obtained are summarized and presented in table 4.

Table 4: Unstandardized, standardized and t-test coefficient on the prediction of dyslexia on self-efficacy.

Explainable variable	Unstandfardized coefficients		Standardized coefficient		
	B	Std. error	Beta	T	p-value
Constant	62.840	4.503		13.956	0.0005
Self-efficacy	-0.486	0.189	-0.218	-2.574	0.011

Table 4 shows that the unstandardized coefficients (B) obtained in predicting dyslexia on self-efficacy are 62.840 and -0.486 respectively for constant and self-efficacy. Thus the model simple regression equation for predicting dyslexia using self-efficacy is Y = 62.840 + (-0.486x) where Y^1 is the predicted value of dyslexia while x is any given score on self-efficacy. It is also shown in table 4.4 that Beta (standardized regression coefficient) obtained is -0.216. This beta value when tested with t-test associated with simple regression yielded a t-value of -2.514 obtained at P-value of 0.011 which is less than 0.05 the chosen level of significance (P<0.05). Thus self-efficacy has a significant negative prediction on dyslexia of the student.

Research Question Three: To what extent does depression relate to dyslexia among secondary school adolescents in Rivers State?
This research question was answered using simple linear regression analysis where depression served as the prediction (independent) variable while dyslexia was the criterion (dependent) variable. The results obtained are summarized and presented in table 5.

Table 5: Summary of simple linear regression on the prediction of dyslexia using depression.

Explainable variable	R	R^2	Adjusted R^2	Std error of the estimate
Depression	0.769	0.591	0.588	8.33

Result in table 4.5 shows that the simple correlation coefficient (R) obtained in predicting dyslexia using depression is 0.769, the coefficient of determination (R^2) obtained is 0.591 while the adusted coefficient of determination (adj R^2) is 0.588. Thus depression is accountable 58.8% changes on dyslexia while it is not accountable to 41.2% changes on dyslexia among students.

Hypothesis Three: There is no significant relationship between depression and dyslexia among secondary school adolescents in Rivers State.

This hypothesis 3 was tested using t-test associated with simple linear regression. The results obtained are summarized and presented in table 6.

Table 6: Showing t-test associated with simple linear regression on the relationship between depression and dyslexia

Explainable variable	Unstandfardized coefficients		Standardized coefficient		
	B	Std. error	Beta	T	p-value
Constant	20.792	2.317		8.973	0.0005
Depression	0.681	0.049	0.769	13.967	0.0005

Results in table 6 revealed that the unstandardized regression coefficient obtained when depression was used to predict dyslexia among students are 20.792 and 0.681 respectively for constant and depression. Thus the model regression equation to be used in predicting dyslexia on depression is $Y^1 = 20.792 + 0.681x$ where Y^1 is the predicted score on dyslexia while x is any given score on depression.

Furthermore, in the same table 6, it was shown that the standardized regression coefficient (Beta) obtained is 0.769. The corresponding t-value of 13.967 was obtained at P-value of 0.0005, which is less than 0.05 the chosen level of significance. Thus depression significantly predicted dyslexia positively among the secondary school students.

Research Findings and Discussion

Reading anxiety and Dyslexia

The finding of this study revealed that there is a significant relationship between reading anxiety and dyslexia among secondary school adolescents in Rivers state. Therefore, the null hypothesis was rejected, indicating that there is a significant relationship between reading anxiety and dyslexia among secondary school students in Rivers State. The result of this study is in agreement with an earlier study by Willcutt, and Gaffney-Brown (2004) who maintained that as many as 20 percent of adolescents with dyslexia suffer from reading anxiety. Smith, Robinson and Segal (2017) also found out that dyslexic adolescents are more susceptible to reading anxiety. They further explained that dyslexics tend to sweat profusely whenever they are asked to reading. The finding of this study thus correct based on the fact that dyslexics develop reading anxiety as they enter

school and experience difficulties fitting in with the learning environment and the expectations of their teachers and parents particularly when it has to do learning how to read and write.

Self-efficacy and Dyslexia

The findings of the study showed that there is no significant relationship between self-efficacy and dyslexia among secondary school adolescents in Rivers state. The null hypothesis of no significant relationship between self-efficacy and dyslexia was retained. The findings of this study disagrees with the study of Chapman, Tunmer and Prochnow (2000) who were of the opinion that students with learning disabilities tend to possess lower levels of self-efficacy than students without learning disabilities. They further maintained that dyslexic students often experience low self-efficacy in performing school assignments and participating in class for fear that they may be embarrassed if they fail. Panagos and DuBois (1999) found out that dyslexic adolescents' self-efficacy beliefs were a strong and potentially limiting influence on their choice of career.

Huntington and William (1993) also found that self-efficacy influences the choices dyslexics make in deciding whether or how to act, the amount of effort they are prepared to invest in any activity, how long they persevere when confronted by obstacles. Idan and Margalit (2014) who argued that students with dyslexia display intact self-efficacy and a more optimistic thinking despite their challenges.

Depression and Dyslexia

The findings of the study revealed that depression significantly predicted dyslexia among secondary school adolescents in Rivers State. The null hypothesis of no significant relationship between depression and dyslexia was rejected. The findings of this study agrees with an earlier study by Alexander-Passe (2006) who observed thatdyslexics are often afraid to turn their feeling outwards toward their environment, instead they turn it inwards, toward themselves thus making them depressed and foreseeing a life of continuing failure. Also Scott (2004) explained that negative emotions such as sadness, disappointment, frustration, shamefulness and depression are frequent complications in dyslexia. He further stressed that depression significantly predicts dyslexia among adolescents.

Edwards (1994) was also of the view that the risk for dyslexics being depressed is related to individuals' experiences of frequent poor academic performance,

feelings of discrimination or rejection by peers and teachers. Hence, depression is significantly related to dyslexia among secondary school adolescents.

Conclusion

Based on the findings of this study, it was gathered that dyslexia is a critical problem among secondary school adolescents. Dyslexia promotes poor oral language functioning, poor self-image, peer rejection, isolate and loneliness. It also leads to underachievement among students, It was also gathered that reading anxiety and depression significantly relates to dyslexia among secondary school adolescents in Rivers State, whereas self-efficacy did not.

Recommendations

Based on the findings of the study, the following were recommended;

1. Schools need to provide counsellors for adolescents who experience difficulty learning at school, as the emotional effects of failure can lead to social exclusion, depression and self-harm.
2. Teachers should use multi-sensory teaching methods (present information aurally, visually, and tactilely) in class to enable students with learning difficulties participate more fully.
3. Parents and care-givers should ensure that they do all it takes to build proper self-efficacy in their children. They should not train them in the ways that they will be timid as this may have direct link on the way the adolescents can adjust despite being dyslexic.
4. School counselling programmes should be strengthened and fully implemented to assist students with learning difficulties cope successfully with challenge they experience.

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