

Borderline Intelligence: At-risk Population for School Dropouts in South West Nigeria

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Abstract

Dropping out of school is a powerful risk factor that can lead to the incredible loss of human potentials and insecurity for the nation; it can also have life-long consequences, especially on education, career and health. The main objective of this study is to explore borderline intelligence as at-risk population for school dropouts. The specific objectives are to investigate whether borderline intelligence is a predisposing factor for school dropouts in South West, Nigeria and compare gender differences among adolescent school dropouts based on borderline intelligence. 565 school dropouts from the three states Lagos, Ogun and Osun States participated in the study and they responded to the Raven's Standard Progressive Matrices that were designed to assess educative ability of different ages. The result found significant differences in the cognitive abilities of the school dropouts. Borderline intelligence was significantly represented in the sample and gender was found to be insignificant, thus implying that both male and female are equally at risk of dropping out of school. The study found that the incidence of school dropouts in South West, Nigeria is heightened by borderline intelligence. Government at all levels should seek the help of psychologists for proper assessment as early as possible, to reduce the incessant increase in the population of adolescents that are out of school in South West Nigeria.

Keywords: Borderline intelligence, cognitive abilities, school dropout, adolescents

Background to the study

Adolescents' development into adulthood is a common basis for all aspects of sustainable development; no advances can be made to societal improvement if the world's children and adolescents are failing to meet their developmental potentials. Dropping out of school is, therefore, a powerful risk factor that can lead to incredible loss of human potentials and insecurity for the nation and disrupt the peace of the nation.

The UN Convention on the rights of the child Article 29 states that every child has the right to education that develops their 'personality, talents, mental and physical abilities to their fullest potential'. The nation's children are its future workers, citizens and leaders. Education remains the major tool by which people become empowered to face the future. A high rate of drop out diminishes the pool of qualified people from diverse backgrounds who will enter the professional and political ranks that make important public policy decisions (APA, 1996).

UNESCO Institute for Statistics, eAtlas on Out-of-School Adolescents 2005-2012 in its report, says the development of sub-Saharan Africa is closely linked to the well-being of its young people. With more than one-third of the total population aged 10 to 24, this large number of young people represents an opportunity to accelerate economic growth and reduce poverty, but only if nations make the right investments in current and future generations. In 2010, 31 per cent of Nigeria's population consisted of young people between 10 and 24 years of age; the number is projected to increase to 73 million by 2025. According to the data from UNESCO (2013), about one-third of these adolescents are out-of-school adolescents, among whom are

school dropouts (using UNESCO indices: dropouts of the education system and enrolled but do not attend school).

In the Nigerian educational system, specifically in secondary/high schools, slow learners often failed and dropped out before graduation, unless if the parent comes to their aid with remedial classes and extra support. It is often noted that dropping out of schools is one of the greatest and largest indicators of juvenile delinquency in Nigeria. Adolescents with borderline intelligence are more likely to do badly in school. This may increase the chances of criminal offences because low educational attainment, a low attachment to school, and low educational aspirations are all risk factors for criminal offences in themselves. Children who perform poorly at school are also more likely to be truants, and the status of offence of truancy is linked to further criminal offences (Adegoke, 2003). Although there are fewer data available, students with disabilities, especially those with emotional and behavioural disorders, appear to be suspended and expelled at rates disproportionate to their representation.

It has been reported that Nigeria has a large number of out-of-school children and young adults with limited literacy and numeracy skills who have little hope of ever joining the formal workforce (USA embassy in Nigeria, 2012).

The Concept of Adolescence

Adolescence is the transitional phase of physical, mental, and social growth and development between childhood and adulthood. The World Health Organization (WHO) defines an adolescent as any person between ages 10 and 19. This age range falls within WHO's definition of *young people*, which refers to individuals between ages 10 and 24.

In statistics, they face difficulties across all areas of ordinary life. They are at increased risk of experiencing physical problems, poverty, have more difficulties with activities of daily living, and have little or no social support and no access to specialised services, especially in Nigeria. They often live problematic lives, functioning under high strain but unnoticed by the rest of society. Many people with borderline intellectual functioning do not have psychiatric disorders, but they are more vulnerable to the development of mental health problems than people of average or above average intelligence and may also be more vulnerable than people with mild intellectual disability. This refers to a person who is still developing cognitive abilities. The study considered age 13 to 24 years as adolescence because the majority of them are supposed to be under the strict guidance of their parents.

Conceptualising School Dropout

School dropout in its simplest meaning is the untimely withdrawal from school. These students who withdraw from school prematurely end up not obtaining any certificate of graduation. The issue of school dropout is a global problem confronting the education industry around the world. Researchers like Mohsin *et al.*, 2004; De Cos, 2005; Bridgeland *et al.*, 2006 and Oghuvbu, 2008) have since buttressed this fact. Few students drop out after their initial experience with school failure. In fact, most persist for years, only dropping out after they fall so far behind that success seems impossible or they are worn down by repeated failure. In the meantime, they are literally waving their hands saying 'help' through poor attendance, acting out and of course, failure.

There is considerable evidence in the literature that most of the pupils that drop out of school, i.e. those who leave school before his or her graduation, possess a number of characteristics such as

1. unmotivated attitude to classwork
2. problems with school authorities, the police or both
3. consistent absenteeism from school, and regular skipping of classes
4. family problems
5. originating from poor families
6. being pregnant or married
7. repeating of classes

One study found that the main reasons students are reported for dropping out include disinterest in classes (a lack of engagement with school life and classes) and academic challenges (they feel that they cannot keep up with academics or had to repeat class or graduation requirements seemed out of reach). High school dropouts are less likely to be active in the labour force.

Several adolescents who are school dropouts usually end up in juvenile correctional institutions. Many students who drop out of school often break the law; they only leave and become students/inmates in juvenile halls or correctional institutions. Any solution to juvenile delinquency must involve all sectors of society: individuals, families, schools, churches, community groups and government.

Borderline Intelligence: Borderline intelligence can be defined as people whose intelligence falls within a narrow IQ band defined as definitely below average in intellectual capacity. The study used the score of participants whose scores were between 25th percentile and the 10th percentile on the Raven's Standardized Progressive Matrices to determine borderline intelligence.

Statement of Problem

Adolescents and children with borderline intellectual functioning fall within a narrow IQ band, defined as 71–84 by the Diagnostic and Statistical Manual of Mental Disorders—DSM-V (APA 2013). They comprise about 14% of the world population, a greater percentage of the population than do children with diagnosable developmental delays. The children and adolescents with diagnosable disorder comprise about 1% of the world population. Conversely, they have received so much attention and several research efforts have been directed towards helping them. Adolescents with borderline intellectual functioning are more vulnerable and predisposed to comorbid disorders and dropping out of school. People who are thus affected are almost invisible in research and intervention. However, adolescents and adults with borderline intelligence have been significantly represented in the population of at-risk behaviour than those with diagnosable disorders (Patterson, 1989).

The critical aspect of wastage in the education system is the drop out of pupils and this has caused problems to the lives of individuals, parents, government and society. Such problems include indiscipline and hooliganism/gangsterism, economic setback, stressful life situations, government wastage of school resources and capacity, set back to technological advancement, mass illiteracy, and moral decadence. Taking a thorough look at the rate of drop out of school pupils in Nigeria, it is obvious that there is a need for all stakeholders in the development of children and adolescents to wake up to this urgent call to identify the possible factors that make the adolescents be more susceptible to dropping out of school and delinquent behaviour.

Akinsola (1999), in a study, identifies and states the existence of learning disabled and borderline intelligence (slow Learners) among Nigerian children.

There is, however, a dearth in studies that tend to explore the role of cognitive abilities, principally borderline intelligence and school dropout in Nigeria. In particular, there is no known study in Nigeria on borderline intelligence as well as establishing it as a correlate of school dropout. As a result of these identifiable factors, it is essential to carry out research on whether borderline intelligence can predict school dropout among adolescents in Nigeria. The paucity of documented evidence concerning the relationship between borderline intelligence and school dropout has created a gap in knowledge which this study aims to fill.

Research Objectives

The main objective of this study is to explore borderline intelligence as at-risk population for school dropouts. The specific objectives are to:

1. investigate whether borderline intelligence is a predisposing factor for school dropouts in South West, Nigeria.
2. compare gender differences in the incidence of drop out among the participants based on borderline intelligence on adolescent school dropouts.

Research Questions

1. How will adolescents in various categories of intelligence grade differ in representation among school dropouts?
2. Is there a gender difference in school dropouts?

Research Hypothesis

1. Investigate whether borderline intelligence is a predisposing factor for school drop out in South West, Nigeria;
2. There will be significant gender difference in school dropouts, such that males will drop out than female.

Piaget's Theory of Cognitive Development

It is widely accepted that a child's intellectual ability is determined by a combination of heredity and environment. Thus, although a child's genetic inheritance is unchangeable, there are definite ways that parents can enhance their children's intellectual development through environmental factors. They can provide stimulating learning materials and experiences from an early age, reading to and talking with their children and helping them explore the world around them. As children mature, parents can both challenge and support the child's talents. Although a supportive environment in early childhood provides a clear advantage for a child, it is possible to make up for early losses in cognitive development if a supportive environment is provided at some later period, in contrast to early disruptions in physical development, which are often irreversible.

Piaget envisions a child's knowledge as composed of schemas, basic units of knowledge used to organise past experiences and serve as a basis for understanding new ones. Schemas are continually being modified by two complementary processes that Piaget terms assimilation and accommodation. Assimilation refers to the process of taking in new information by incorporating it into an existing schema. In other words, we assimilate new experiences by relating them to things we already know. On the other hand, accommodation is what happens when the schema

itself changes to accommodate new knowledge. According to Piaget, cognitive development involves an ongoing attempt to achieve a balance between assimilation and accommodation. He terms this equilibration. For children and adolescent with borderline intelligence, they usually find it difficult to assimilate and accommodate new information. Piaget opines that children learn differently than adults because they do not yet have the experiences and interactions needed to interpret information; especially as infants, children are constantly gathering information through their senses. They learn about their world by watching, grasping, mouthing and listening. They learn to avoid danger for example, not by reading a caution sign, but by experiencing 'hot' or falling from a chair they just climbed. Nevertheless, it is not just activities and sensory experiences that help children to develop; they also learn through interactions with adults and their peers. If an adolescent lacks the proper guidance that will propel him/her towards academics, they may find it difficult to progress academically, and once there is a puzzled state in an adolescent's academic activities, they tend to look out for an escape which could be delinquent behaviour or skipping classes, and this could make them more vulnerable to being school dropouts.

Prevalence of Borderline Intelligence and Learning Disability among Nigerians

Akinsola (1999) in a study identifies the existence of learning disabilities and borderline intelligence (slow learners) among Nigerian children. During early adolescence, rejected children begin to congregate with each other for support, forming delinquent peer groups.

Sango (2017), in a study on intellectual profiling of Nigerian children, uses a chronological approach, providing an assessment of the understanding and treatment of people with intellectual and developmental disabilities (IDD) from the pre-colonial era to the present. According to the study, Nigeria has experienced a different historical path in terms of treatment and service provision for people with IDD compared to industrialised and developing countries such as the UK and Brazil. The purpose of this paper was to provide a contextual and general overview of intellectual and developmental disability (IDD) in Nigeria. Nigeria is the most populous country in Africa with an emerging economy and thus important to review the treatment and social inclusion of people with IDD in the country's development.

Prevalence of School Dropouts in Nigeria

In a report released by the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2006), Nigeria is ranked high among nations where large populations of school children are not in the classrooms. The report shows that one out of every five Nigerian children is out of school. The UNESCO Education for All Global Monitoring Report (EAGMR) states Nigeria holds the world record of having the highest number of its young people out of school. With approximately 10.5 million kids out of school, Nigeria tops the table of 12 other countries, accounting for 44 per cent of the global out-of-school population.

Ajaja (2012) carried out research on the pattern of drop out among secondary school students in Delta State, Nigeria and he found out that more female students drop out of school than males. Okedara (1979) identifies financial crisis as a factor for school dropout. The findings revealed that dropouts are those pupils who could not pay their school fees and or who could not meet financial expenses. Children who perform poorly at school are also more likely to be truants and the status offence of truancy is linked to further criminal offences (Adegoke, 2003).

Method

Three states were randomly selected and they were Lagos, Ogun and Osun states. This is justified by the large population and availability of school dropouts congregating in the major locations in the states. The selected states are urban centres with less agricultural activities which should have occupied the youths. The researcher selected areas where school dropouts are found in large numbers in the selected states. They are as follows:

- (i) Lagos State: National Stadium Surulere, Ajah Motor Park, Oshodi Motor Park, Sandgrust Market, Boys Correctional Home Oregun.
- (ii) Ogun State: Bostal Training Home, Adigbe, Abeokuta; Ibadan Motor Park, Ijebu Ode, Gateway Stadium, Abeokuta.
- (iii) Osun State: Osogbo Township Stadium, Osogbo; Mayfair Motor Park, Ile-Ife.

Sampling Technique

The combination of random, stratified, convenience and snowballing sampling method was used in selecting the participants in all the locations for this phase. Random sampling method was used in selecting the participants across ages; convenience sampling was used for some selected locations because of accessibility to the population of interest. The locations were selected using purposive sampling for adequate representation across all demographical characteristics. Participants' consent was obtained before their involvement in the study.

Sampling Selection and Characteristics

The sample comprises of adolescents that are within the ages of 13 and 25 years. Participants are all school dropouts and some are from institutionalised homes/correction centers. 565 school dropouts participated in the study from different socioeconomic statuses, ethnic and family backgrounds.

Design

The study employed a survey design with the use of an intelligence test and a brief demographic data form.

Instruments

The instrument used for this study was the Standardized Raven's Standard progressive matrices (intelligence test). Demographical information obtained includes name, present age, age of leaving school and reason for leaving school. There is a column for the scores of the participants on Raven's Standard Progressive Matrices and the grades of the participants on the test.

The Raven's Standard Progressive Matrices

The Standard Progressive Matrices were designed to assess the educative ability of different ages. Matrices are non-verbal 'culture fair' multiple choice intelligence quotient (IQ) tests that measure fluid intelligence (GF), reasoning and problem-solving ability. The Standard Progressive Matrices, Sets A, B, C, D and E were developed as a measure of Spearman's general intelligence factor. They are tests of capacity to apprehend meaningless figures presented for observation. They are nonverbal group tests typically used in educational and clinical settings. The format is designed to measure the test participant's reasoning ability. In the test, each participant is asked to identify the missing element that completes each pattern. Many patterns are presented in the form

of 4x4, 3x3, or 2x2 matrices, giving the test its name. Participants are required to complete a missing pattern in each of the slides displayed. It is very simple to use and interpret. It is also independent of language, reading and writing skills. The Raven's test has widespread practical use as a measure of intelligence in the general population for both adults and children.

The Raven's Standard Progressive Matrices is developed for use in central research into the genetic and environmental bases of 'intelligence'. Raven (1936) set out with the specific intent of developing tests which would be easy to administer and also easy to understand in a clear, supposedly relevant way. Put another way and with the benefit of retrospection, what he did was to make the two main components of 'general intelligence' directly measurable (as distinct from that which is measurable by the application of complex, factor-analytically established, weighting procedures) and measurable through using procedures almost as robust and directly interpretable as those used to measure height or temperature.

The tests by Raven have been widely applied in both practice and research and a vast pool of data has now accumulated (Raven, 2003). Inspection of these data appears to reveal that the abilities that are most often thought to lie at the heart of 'intelligence' are much more open to environmental influence than had previously been thought. The study of intelligence is important and is the bedrock of the educational attainment in Nigeria.

The two main components of general cognitive ability which Raven sought to measure directly were those identified by Spearman (1927). These are educative ability (from the Latin *educere*, meaning "to draw out"), the ability to make meaning out of confusion, the ability to generate high-level, usually nonverbal, schemata which make it easy to handle complexity; and reproductive ability—the ability to absorb, recall, and reproduce information that has been made explicit and communicated from one person to another. Akinwale *et al.* (2017) establish norms for Raven's Standard Progressive Matrices for Nigerian use. The split-half measure of reliability is 0.60, with secondary school students; and Cronbach's alpha of 0.81 was also found. The inter-correlation Matrices of Raven's Standard Progressive Matrices is significant at the 0.01 level (2-tailed) which implies that the 5 subsets of SPM are consistent. Validation of the Raven's Standard Progressive Matrices with another intelligent test was also reported by Akinwale, *et al.* (2017). Cattell's culture fair test was used to establish convergent validity because the tests are similar in terms of features. Pearson Product Moment Correlation was used to establish convergent validity and obtained a correlation score of .76 between Raven's Standard Progressive Matrices and Cattell's Culture Fair Test. The result shows that the Raven's Standard Progressive Matrices is a valid instrument for use among Nigerians.

Procedure

Administration of the Instruments

The Raven's Standard Progressive Matrices was administered to the participants to measure their intellectual abilities. The test was administered to the participants at the institutions and various gathering points.

Permission was obtained from the authorities of the Bostal Training Home, Abeokuta and Boy's Correctional Home, Lagos to enable the adolescents to participate in the research. The non-institutionalised adolescents were approach individually for participation. Rappports were established with the participants because the majority of them do not like to hear or entertain anything that relates to academic life. The purpose of the study was explained to them so as to

gain reliable information about their cognitive abilities and parental practices they have benefitted from and the role they play in their dropping out of school. Conversely, the importance of responding truthfully was emphasised. The instructions on each of the instruments were read to them and verbal explanation followed. They were encouraged to ask questions because majority of them could not read and comprehend the phrases in the test items. Most of the items were carefully read aloud for them to understand and answer. The answering key also differs from one test to the other; all these were taken note of during the data administration. An explanation was given where necessary and they were not timed in order to allow them to express themselves during the study. They were also encouraged to attempt all questions in the questionnaire because any incomplete test may render that packet useless. The instruments were collected immediately after completion so as to ensure that proper scanning was done in case of omission or blank spaces.

Hypotheses Testing

Hypothesis 1: Adolescents' scores on Raven's progressive matrices will differ significantly across all the categories of intelligence grade, such that adolescents on borderline intelligence will be significantly represented in the population dropouts than others.

To test this hypothesis, the scores of all the participants were grouped into four categories of intelligence grade that were present in this study. Mean, standard deviation and Analysis of Variance were computed. The result is presented in tables 1 and 2 below:

Table 1: Means and standard deviation of participants' on SPM score

SPM GRADE	Mean	SD	N
Above average Intelligence	41.71	1.97	7
Average Intelligence	36.21	3.37	39
Borderline Intelligence	24.86	2.72	443
Intellectually impaired	17.18	4.45	76
Total	24.82	5.44	565

The result in table 1 shows the scores of participants on the intelligence grade according to their RSPM scores. Participants that are on the borderline intelligence grade had the highest representation of 443 which is 78.5%, followed by those that are intellectually impaired with 76 participants which are 13.5%. Participants who are on average intelligence grade and above average had the least representation among the school dropouts.

In order to find out if the observed differences in table 1 are statistically significant, analysis of Variance (ANOVA) was computed. The result is presented in table 2 below.

Table 2: ANOVA summary of RSPM scores of participants

Sum of Squares	df	Mean Square	F	Sig.
11484.894 ^a	3	3828.298	412.38	P<.5
78244.429	1	78244.429	8428.46	
11484.894	3	3828.298	412.38	
5207.963	561	9.283		
364637.000	565			

The result in table 2 shows that significant differences occurred among the various intelligence grades on RSPM. This indicates that borderline intelligence is more represented in the population of dropouts than intellectually impaired, average and above average intelligence.

Hypothesis 2: There will be significant gender difference on the scores of measure of intelligence, such that males will score higher than female.

To test this hypothesis, scores of male and female participants on RSPM were compared. The mean, standard deviation and independent sample test were computed. The result is presented in tables 3 and 4.

Table 3: Mean and SD scores of male and female participants on RSPM

	GENDER	N	Mean	SD
SPM SCORE	MALE	311	24.90	5.016
	FEMALE	254	24.71	5.927

The mean score of the male is 24.90 while the female mean score is 24.71, thus indicating a slight difference between the two mean scores. A slight difference was also noticed in the standard deviation scores. The significance level of the difference was tested and reported in table 4 below.

Table 4: T-test analysis for RSPM score according to gender

		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
SPM SCORE	Equal variances assumed	2.872	.091	.408	563	.684	.188	.460
	Equal variances not assumed			.401	496.815	.689	.188	.468

The result did not show significant difference between male and female scores on the RSPM; the hypothesis is, therefore, rejected [$f(1,563)=2.87, P>.05$]. It thus indicates that cognitive ability has nothing to do with gender.

Summary of Findings

The following are the major findings after the investigation:

- i. The study revealed that only four categories of intelligence are present among the school dropouts; superior intelligence is not represented in the dropout population sampled in the study.
- ii. The number of school dropouts in South West, Nigeria is heightened by borderline intelligence.
- iii. There is no difference in the scores of male and female school dropouts on the RSPM test, thus indicating that the phenomenon is not gender sensitive.

Evaluation of investigation of Factors Influencing School Dropout in Nigeria

The findings of this study revealed four categories of intelligence but excluded the superior intelligence. This is not surprising and having borderline intelligence more than average intelligence and above average intelligence is also a good starting point in corroborating the central aim and objective of this study. The assertion that says cognitive ability is one of the fundamental needs of adolescents' developmental task is accepted, thus cognitive development as posited by Piaget (1952) and Erikson (1968) has been corroborated by the study.

The first hypothesis tested revealed that adolescents' scores on Raven's progressive matrices differ across all the categories of intelligence grades. Adolescents who are on borderline intelligence are more represented in the school dropout population than those who are on average intelligence, above average intelligence and those who are intellectually impaired. The instrument is categorised based on five grades of intelligence but this study found four categories of intelligence in the dropouts sampled. The superior intelligence (Grade1) is not represented in the sample, which suggests that the grade is not common among the sample study of dropouts. The high representation of borderline intelligence in the drop out sample in this study supports the study by (Patterson, 1989) which asserts that adolescents and adults with borderline intelligence have been significantly represented in the population of at-risk behaviour (Patterson, 1989). The definition of borderline intellectual functioning employed in the current study (IQ in the 71 to 84 range) is consistent with the definition specified in the *DSM-IV*. However, results held even when the more conservative IQ band of 76 to 84 was considered. The findings also support Akinsola's (1999) study which also indicates the existence of borderline intelligence and learning disabilities among Nigerian children.

In addition, the study found no gender difference in SPM scores of participants on borderline intelligence. The lack of significant difference in this study does not rule out the study by Ajaja (2012), carried out on the pattern of drop out among secondary school students in Delta State, Nigeria. He found out that female students drop out than males. The study scope does not extend to the region of the country where the patterns of school dropout is obviously different.

Conclusion

There must be academic support for the adolescents that are considered to be below average, especially those on borderline intelligence so as not to encourage them to drop out of school. Adolescents on borderline intelligence have been ignored and our society does not even pay attention to their academic needs, rather we label them as slow learners (i.e *Olodo* in Yoruba Language). Sometimes they are flogged and punished unduly for not mastering the skills needed to be promoted to another class.

However, the adult on borderline intelligence tend to blend with the rest of the population during adulthood, but oftentimes they fail in duties, disappoint customers when they work as artisans, and keeping to time is difficult for them. Those that failed to gain vocational job work as unskilled labourers and many are prone to job-related accidents.

The findings of the study will help psychologists, teachers, stakeholders and other significant others to know why some students are slow learners or failing in school. Finally, this study will increase the scanty literature on borderline intelligence and how they correlate with school dropout in Nigeria.

Limitations of the Study

Most of the data used in this analysis were self-reported by dropouts and, while typical of large-scale studies, this method of data collection can yield biased estimates due to participants' unreliable information. Furthermore, no causal conclusions can be made from the statistics presented here. In order to be able to achieve a truly developmental progression, the study would have been a longitudinal study and that could span for about six to ten years.

Suggestions for further Studies

1. Future research is recommended to study all the states in the federation so as to gain a clearer picture of borderline intelligence among different age groups.
2. It is also important for future researchers to design a more suitable cognitive assessment kit that is completely culturally unbiased to categorise people based on intellectual functioning.
3. A longitudinal study is recommended for this type of study so as to be able to measure the age progression.
4. Parental practices should also be explored, so as to know the contribution of parents to the menace.

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