

Socio-economic Background, Hearing Loss and Academic Performance in School-aged Children in Rivers State, Nigeria

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Abstract

The study was designed to determine the influence of socio-economic background on the academic performance of school-aged children with hearing loss in Rivers State, Nigeria. The study was guided by two research questions and two hypotheses. Documentary analysis was used as design of the study. The population of the study was 126 pupils with hearing loss from the Special School for Handicapped Children (UBE), Nursery, Primary and Junior Secondary; Christy Toby Inclusive Education; Chamba International School and Exceptional Diamond School. Sample of the study was 126. Pupils' academic records, pupils' personal data and questionnaire were employed as instruments for data collection. Validation of the instrument was carried out by experts in Measurement and Evaluation. Reliability was ascertained using test retest method. Statistical mean and standard deviation were used to answer the research questions and t-test analysis was used to test hypotheses at 0.05 level of significance. Results from the findings indicated that pupils with hearing loss from high socio-economic background performed better than those from low socio-economic background. The study recommended that schools should be modeled to provide educational simulation to compensate for the inadequacies of the home-front.

Keywords: *Socio-economic background, Hearing loss and academic performance, School-aged children*

Introduction

Academic failure is one area that has attracted much interest especially in the education of children. Most investigations carried out have shown that nature and nurture work hand in gloves to determine academic success. Fortunately, nurture has gained an upper hand principally due to the science of epigenetic- the science of how environment influences genetic expressions. Weinhold (2006) defined epigenetic as any process that alters gene activities without changing the DNA (Deoxyribonucleic acid) sequence and leads to

modifications that can be transmitted to daughter cells. These switches can either strengthen or impair aggression, immune function, learning and memory.

However, the major environmental influence capable of these changes is socioeconomic background. Thus, socioeconomic status, an environmental predictor may create signals that cause genes to become activated or shut-off and these signals include stress, nutrition, educational stimulation and others.

Socioeconomic status appears to be a multidimensional trait which may determine a family's economic access to resource and its social hierarchy. Socio-economic status is made up of several correlates of which parental educational level and parental income serve as two major aspects. They do not only affect academic performance but also other aspects of the child resulting in a cumulative all-round effect. Poverty by way of malnutrition and ill-health may impact negatively on cognition and by extension, academic performance.

Weinhold (2006) stated that due to the challenges faced by children from low socioeconomic background, their brains have adapted to suboptimal conditions in ways that undermine good school performance. Sleek (2015) mentioned problems associated with low socio-economic status and they include physical and mental disorder, low educational attainment and low intelligence quotient scores. The researcher further stated that smaller hippocampal volume found amongst children from low socio-economic background was a disadvantage to memory.

Ormrod (2000) reiterated that higher socioeconomic status students tend to have higher academic achievement and lower socioeconomic status students tend to be at greater risk of dropping out of school because lower income families sometimes have difficulties giving their children the resources and educational experience on which successful school learning often builds. The researcher also explained that factors that contribute to the general lower school achievement of lower socioeconomic status student include poor nutrition, emotional stress, and fewer early experiences that foster school readiness, lower aspiration and less parental involvement in children's education. Biehler and Snowman (1990) further explained that on the average, American children who come from upper and middle class homes perform better in school and on standardised tests than children who come from lower class or minor group homes.

Again, socioeconomic status has been associated with the presence of certain sensory disabilities in both children and adults. It has the capacity to either reduce or reinforce the effects of disabilities and forms an important aspect in its management. Unfortunately, sensory disabilities are often demanding and parents with low socioeconomic status may lack knowledge of the condition due to their low educational background and/or income to cope positively with it, hence, children with hearing loss from

low socio-economic families may remain with the disability and its effects that tell increasingly on the child. Ubani, *et al* (2020) stated that disability is often difficult to manage because the facilities are specialised and most parents can ill afford them.

Some of the causes of hearing loss are associated with poor antenatal care, untreated infections, poor medical attention, malnutrition, poor quality of life in general and others which all have a bearing on socio-economic status. These negative conditions also tell on the children since they often need medical attention due to their health status. Matiz and Lalwani (2022) stated that children with hearing loss needed coordination of care to navigate social and medical services. Lasisi, *et al* (2013) explained that chronic suppurative otitis media is strongly associated with low socio-economic status. Takwoingi, *et al* (2021) also reiterated that otologic diseases causing hearing loss during early childhood might have negative effects on the child which may cause delayed cognitive skills, speech and language development often resulting in poor performance in school compared to those with normal hearing threshold.

Children from high socioeconomic background may easily overcome these challenges in two key ways. Firstly, their high educational status ensures quality educational centres where children may profit from the expertise of school administrators and teachers. Administrators of such schools provide individualised assistance with take-home assignments, enriched educational experience such as excursions to zoo, museums, airports and other impactful sites. They also have well equipped libraries from where children may acquire additional knowledge and experience.

Kobiowu (1996) as cited by Elechi and Ogbondah (2016) opined that educated parents can send their children to good schools early, provide them with educational materials, develop and encourage their children's interest in academic performance as well as ensure good job placement opportunities. Kumvenda (2017) stated that students in independent schools had a significantly higher mean score than children from state funded schools. Also, Alimi (2011) added that there was a significant difference in facilities available in public and private schools.

Secondly, Parents with high socioeconomic status ensure that their children are fully involved in (re) habilitation programmes and get the best out of it by way of technological device and therapy. They apply and follow up early intervention which is the most important remediation/management procedure. Giallini, *et al.* (2021) pointed out that timely intervention with the most appropriate fitted technique may exploit elevate early neural plasticity and may prevent or reduce the risk of brain dysfunction in brain maturation, increasing the probability of an early and rich auditory and linguistic experience. Shekari, *et al.* (2017) also explained that the primary focus in the implementation of early intervention

service is to reduce the negative effects of risk factors and facilitate optimum development over time.

Sensory disabilities such as hearing loss impact greatly in the academic performance of school children because instructional delivery involves the use of words. Words are one of the most important natural endowments possessed by man. They are powerful enough to tear down kingdoms, crumble worlds, enslave men and precipitate scars. They are also potent enough to unite enemies, create nations, re-mould destinies and tune mindsets. Gouldner (1976) stated that ideologists believe that words matter and have the power to change men and their worlds, sometimes dropping the scales from their eyes or shackles from their hands.

In children, words nurture, instruct, encourage and inspire. They convey direct and inferred meanings which the child needs to access and analyse to learn. Amadi (2003) stated that best communicators should be those who trigger in a receiver a range of possible connotative/denotative interpretations/inferences capable of synchronising with the sender's/sources' intentions/gestures.

With hearing loss, accessibility of both direct and inferred message is distorted because there is a break in communication between sender and receiver. Limitations in hearing either distort the message or prevent the receipt of the message. In either ways, communication is interpreted as null and void. Okon (2001) explained that if the message is not decoded in a way that corresponds to the encoding and if the destination is unable to handle the decoded message in order to derive a response, there is obviously no communication.

This leads to a progressive cumulative effect as the child progresses in academic levels because transduction is hindered and information in the form of electrochemical signal does not get to the brain. Brogard (2010) summed the disadvantages of hearing loss in instructional delivery when he explained that stored information is depleted and this is the same information that would be recalled during evaluation. Children with hearing loss begin to lag behind peers and this was why Heward (2003) explained that the average student with hearing loss completing a secondary education programme is still reading and writing at a level commensurate with the average 9 to 10 years old hearing student.

Due to lack of funds, parents with low socio-economic families enroll their children in public schools where large class size, inadequate instructional materials, lack of individual attention, shortage of teaching staff, poor identification of disability and assessment of such children are major setbacks. In the long run, there is a wide gap in academic performance between children with low and high socio-economic levels which continue to increase with time.

Statement of the Problem

Learning in children comes from a cumulative build-up of foundational educational skills acquired yearly. This process of learning involves a couple of steps such as perception of sound, analysis of perceived sound and the interpretation of analysed sound. The learning process or classroom instruction is made up of phonemic vowels and consonants that make up words and sentences. The responsibility of the ear is precipitated on its ability to pick phonemic sounds which are the smallest unit of speech that differentiates sounds in words and it is through these words and sentences that vocabulary is built. It is also the role of the ear to analyse these words along different parts of the cochlea and send the signal to the brain for interpretation and prompt response. This complex process starts from the proper functioning of the ear in general and the auditory system in particular. With hearing loss, sound is not perceived, vocabulary or language is difficult to acquire and communication is limited. Thus, a child finds expressive and receptive language difficult to acquire because transduction is ineffective. In other words, hearing loss makes it difficult for children to pick up instructions from classroom interaction or gain meaningful interpretation from what is heard, thus, inadequacies in both expressive and receptive communication skills become a limitation in academic activities and verbal communication.

This affects the academic performance because classroom instruction cannot be understood. It affects their social life because they cannot understand peers, meaning that social interaction is also affected. Also, gaps in academic grade levels begin to gain ground and widen if intervention is not applied early. Unfortunately, the impact of these limitations can be reduced for children from high socio-economic background because the problem may be discovered early and intervention also applied early. For children from low socio-economic background, identification and intervention is difficult to achieve, leading to a wide difference in academic performance between children from low and high socio-economic background.

Purpose of the Study

The purpose of the study was to determine the influence of socio-economic background on the academic performance of children with hearing loss. In specific terms, the objectives of the study include:

1. Determining the difference in academic performance of pupils from educated and uneducated families.
2. Examining the difference in the academic performance of pupils from high and low income families.

Research Questions

The following research questions were raised to guide the study:

1. Determining the difference in academic performance of pupils from educated and uneducated families.
2. What is the difference in the academic performance of pupils from high and low income families?

Hypotheses

The following null hypotheses were formulated to guide the study:

1. There is no significant difference between the academic performance of pupils with hearing loss from educated and uneducated families.
2. There is no significant difference between the academic performance of pupils with hearing loss from high and low income families.

Method

The research design employed in this study is the documentary analysis, a sub-type of descriptive research design. Maduabum, (2017) explained that in documentary analysis, records and documents were examined with a view of explaining the status of some phenomena at a time or its development over a period of time.

Population of the Study

The population of the study comprised of 126 school-aged children from the Special School for the Handicapped Children (UBE), Christy Toby Inclusive Education; Exceptional Diamond School and Chamber International School.

Sample and Sampling Technique

The sample of the study was 126 school-aged pupils with hearing loss in Rivers State, Nigeria. Ogidi (2018) asserted that sampling technique refers to a plan specifying how elements will be drawn from the population. Census sampling technique was employed in this study due to the small size of the population.

Instruments

Questionnaires, academic scores and students' personal data were utilised. Questionnaire was used to gather information on parents' socio-economic background including income, educational background, occupation and others. Academic records and pupils' personal data provided information on academic performance.

Validation of Instruments

Two experts in Guidance and Counseling and one in Measurement and Evaluation from Ignatius Ajuru University of Education validated the instruments. The instruments were validated in terms of appropriateness of items in the instruments, clarity of language and adequacy of the number of items constructed. Their corrections and comments were incorporated into the final structure of the instruments.

Reliability

The questionnaire was first administered to the parents and result recorded. At the end of two weeks, same instrument in different paper colour and arrangement of items was administered to same parents and the two separate sets of scores correlated using cronbach alpha 21(KR21) to ascertain the reliability coefficient of 0.85 indicating that the instrument was suitable for use.

Method of Data Analysis

The research questions were answered using Mean and Standard Deviation while the Hypotheses were tested with t-test analysis at 0.05 level of significance. The response generated from the instrument used was rated on the four point Likert rating scale.

Presentation of Results

Research question 1: What is the difference between the academic performance of pupils from educated and uneducated families with hearing loss?

Table 1: Mean and standard deviation on the difference between the academic performance of pupils from educated and uneducated families with hearing loss.

Educational background	Number	Mean	Std.dev	Mean difference
Educated	58	63.86	8.69	7.05
Non- educated	68	56.81	10.28	

Table 1 reveals that pupils whose parents are educated have a mean score of 63.86 while pupils whose parents are not educated have a mean score of 56.81 with a mean difference

7.05. This is an indication that pupils from educated families perform better in academics than pupils from uneducated families.

Research Question 2: What is the difference between the academic performance of pupils from high income families and pupils from low income families with hearing loss?

Table 2: Mean and standard deviation on the difference between the academic performance of pupils from high income families and pupils from low income families with hearing loss

Socio economic status	Number	Mean	Std.dev	Mean difference
High	42	69.19	9.74	10.37
Low	84	58.82	10.36	

Table 2 reveals that pupils whose parents have high income have a mean score of 69.19 while pupils whose parents have low income have a mean score of 58.82. A mean difference of 10.37 indicates that pupils whose parents have high income perform better than their peers whose parents are of low income.

Ho1: There is no significant difference in the academic performance of pupils from educated and uneducated families with hearing loss.

Table 3: T-test analysis showing the difference between the academic performance of pupils from educated and uneducated families with hearing loss.

Educational Rank	Number	Mean	Std.dev	Df	t-cal	sig	Decision
Educated	58	2.07	0.70	124	20.58	0.000	S
Uneducated	68	2.38	0.68				

Analysis of the result on Table 3 indicates a significant difference as the calculated t-value of 20.58 is greater than the t-critical value of 1.96 at $df = 124$ at 0.05 alpha level of significance. Therefore, hypothesis is rejected. This shows that there is a significant difference between

the academic performance of pupils with hearing loss from educated and uneducated families.

Ho2: There is no significant difference between the academic performance of pupils from high income families and low income families with hearing loss. families.

Table 4.4: t-test analysis showing the difference between the academic performance of pupils from high income families and low income families with hearing loss.

Income status	Number	Mean	Std.dev	Df	t-cal	Sig	Decision
High	42	69.19	9.74	124	3.93	0.000	S
Low	84	58.82	10.36				

Analysis of the result on Table 4.4 indicates a significant difference as the calculated t-value of 3.93 is greater than the t-critical value of 1.96 at $df = 124$ at 0.05 alpha level of significance.

Therefore, the hypothesis is rejected. This shows that there is a significant difference between the academic performance of pupils from high income families and low income families with hearing loss.

Discussion of Findings

Academic Performance of Pupils with Hearing Loss from Educated and Uneducated Family Background High educational qualification provides a basis for early intervention and bridges the gap in academic performance between school-aged children with hearing loss from high and low socioeconomic background. Noblitt, *et al.* (2018) revealed from findings of their study that multiple barriers including low socioeconomic status, insurance type and parental education can affect utilisation of these devices and may impact the recipient of language development. Nazannin, *et al* (2013) revealed that children with hearing loss having educated families do better in school since their parents are educated enough to handle the limitations associated with hearing loss. Sleek (2015) also revealed from findings of study that lack of home stimulation by way of warmth, provision of books and educational materials affected children of 4 years to 8 years. Ping, *et al.* (2018) further revealed that socio-economic status in the form of occupation and education was associated with hearing loss. These discoveries are in line with the findings of this study because lack of income is a form of deprivation that limits the ability of parents of children with hearing loss to provide

the needed medical and educational support to boost not only their general health but also their cognition, hence, their poor educational performance.

Academic performance of pupils with hearing loss from low and high income family background

Investigations carried out to determine the difference in academic performance of children with hearing loss from low and high socio-economic status tends to indicate a generalised difference in academic performance as a result of parental income. Boss, et al (2011) revealed from findings of their study that compared to families of children with hearing loss from high socio-economic status, those from low socio-economic families live closer to poverty level and utilise some medical services with less frequency.

Sleek (2015) revealed from findings of study that exposure to poverty from an early age is more devastating than poverty at a later age because the first five years of life was the most sensitive period for the damaging influence of economic deprivation. Adejumo and Omogbe-Nicholas (2008) also revealed that parental socio-economic status has a significant and substantive independent effect on individuals' academic performance. Akinyele, *et al.* (2008) further revealed that parental socio-economic status, school type, school population and general school environment can make a significant contribution to students' academic performance. Yabbi (2013) concluded that economic factors such as low income of parents, lack of hearing device and lack of books were leading factors to poor academic performance associated with low socio-economic status. These findings revealed from investigations carried out on the subject area all tie with the findings of this study that there is a difference in the academic performance of children with hearing loss from low and high socio-economic background.

Conclusion

It was obvious from the study that there are differences in the academic performance of school-aged children with hearing loss based on socio-economic background as contained in the research questions and hypotheses. The conclusion from the study is that parental education influences the academic performance of children with hearing loss.

Also, pupils with hearing loss from high income families perform better than those from low income families.

Recommendations

Parental socio-economic status may not be easily controlled but adjustment in the school environment is a strong modifier and may easily override the effects of low socioeconomic status on academic performance of school-aged children with hearing loss. Schools should be well equipped to provide educational simulation to compensate for the inadequacies at the home front. Books, instructional materials, visual illustrations with pictures, charts, graphs, and/or diagrams should be adequately provided for instructional delivery.

Teachers should always ensure the use of natural gestures and the chalkboard for every instruction. Teachers should also introduce instructional strategies such as modeling and peer tutoring should always be a part of instructional delivery. Again, teachers should employ bilingual approach in classroom instruction as a major to provide desired outcomes in children with hearing loss. Screening and evaluation of neonates in public hospitals and health centres should be initiated to serve as the starting point for early identification of children with hearing loss to ensure that intervention measures are effected especially in cases of congenital hearing loss. Again, health centres should be equipped to handle potential cases of hearing loss and other auditory challenges in order to prevent referrals to specialist centres and/or other strategic locations.

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