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Resilience as a Correlate of Learning Outcomes among Adolescents with Hearing Impairment in Ibadan, Nigeria

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Abstract**:** *Adolescents with hearing impairment often record lower academic outcomes than their hearing peers, a pattern sometimes read, unfairly, as evidence that they lack the drive or inner resource needed to succeed in school. This study examined resilience as a psychological correlate of learning outcomes, conceptualised here as academic achievement and social interaction, among adolescents with hearing impairment in Ibadan, Nigeria. Two research purposes were pursued and two null hypotheses were tested. The study was anchored on Vygotsky's Sociocultural Theory and adopted a descriptive research design of the correlational type. A census sample of 30 adolescents with hearing impairment was drawn from two special schools in Ibadan. Data were collected using an Academic Achievement Proforma, the Connor-Davidson Resilience Scale (CD-RISC-10), and a Social Interaction Scale (SIS), whose reliability coefficients were established at 0.76 and 0.72 respectively through test-retest and Cronbach's alpha. Both hypotheses were tested using Pearson Product-Moment Correlation (PPMC) at the 0.05 level of significance. Findings showed no statistically significant relationship between resilience and academic achievement (r(28) = -.063, p = .739) or between resilience and social interaction (r(28) = .143, p = .449). It is concluded that, within this sample, resilience functions largely as an individual coping resource that does not by itself translate into stronger classroom performance or richer peer engagement, a pattern consistent with a sociocultural reading in which learning and social participation depend more on the availability of accessible interactional structures, such as interpreters and trained More Knowledgeable Others, than on internal adaptive capacity alone. The study recommends that schools invest in communication infrastructure and structured peer-interaction programmes rather than relying on resilience-building in isolation to improve outcomes for this population.*

Keywords: *resilience; learning outcomes; academic achievement; social interaction; hearing impairment; adolescents; sociocultural theory*

INTRODUCTION

Learning outcomes are widely regarded as one of the clearest indicators of a student's progress, achievement, and future opportunity. Yet adolescents with hearing impairment frequently record learning outcomes below those of their hearing counterparts, a gap that has, in some quarters, been attributed simply to a lack of motivation or personal drive. Because such an attribution risk obscuring the real, structural sources of underachievement, it is important to test empirically whether internal psychological resources such as resilience actually account for differences in how these adolescents perform academically and interact socially within school.

Resilience is broadly defined as the capacity of an individual to adapt successfully and to maintain, or regain, competent functioning despite exposure to significant adversity, risk, or stress (Masten, 2014). It has also been described more broadly as the ability to adapt successfully to stressors while maintaining psychological well-being, and to "bounce back" from difficult experience (US Department of State, 2017). Ann Masten's influential "ordinary magic" framework reframes resilience as the product of ordinary, everyday adaptive systems, such as supportive family relationships, effective schools, capable self-regulation, and community connectedness, operating normally under conditions of adversity, rather than as a rare trait possessed only by exceptional individuals (Masten, 2001, 2014). This reframing matters because it locates the sources of resilience within reach of deliberate educational and psychosocial intervention. More recent extensions of the theory stress that resilience operates across interacting systems, from the neurobiological to the sociocultural, so that promoting positive adaptation requires attention to the child's whole ecology (Masten, Lucke, Nelson, & Stallworthy, 2021).

For an adolescent with hearing impairment, adversity is frequently chronic, manifesting as communication isolation, vulnerability to stigmatisation, restricted peer interaction, and, in many Nigerian contexts, limited family and community understanding of deafness (Okoye, 2015; Akinpelu, 2018). Under such circumstances, resilience is theorised as a critical psychological resource that can determine whether a hearing-impaired learner withdraws from academic engagement or continues to strive toward educational goals despite repeated setbacks. Prior studies have reported that academic resilience is positively associated with learning outcomes generally (Ayala & Manzano, 2018; Cassidy, 2016; Meneghel, Martínez, Salanova, & De Witte, 2019), and Nigerian-focused work has linked emotional regulation and academic resilience to stronger academic performance specifically among adolescents with hearing impairment (Olaleye & Adeniyi, 2019). Where family and community understanding of hearing impairment is limited, a persistent challenge within many Nigerian communities (Abdulrauf & Onitada, 2024), the ordinary adaptive systems that Masten identifies as central to resilience may themselves be compromised, placing a heavier burden

on the learner's own internal resources. Documented shortages of assistive devices, instructional materials, and sign-language-competent personnel in Nigerian inclusive secondary schools (Mbon et al., 2023) add further weight to this burden, even in relatively well-resourced urban centres such as Ibadan.

Despite this theoretical case for resilience as an important lever of achievement, Nigerian empirical work on learners with hearing impairment has more often examined constructs such as self-esteem, career aspiration, study habits, and locus of control (Magaji, 2025), while the international literature on resilience among hearing-impaired populations has concentrated on contexts such as China, Ethiopia, and Pakistan. Few, if any, studies conducted within Nigeria, and none identified specifically within Ibadan, Oyo State, have empirically examined how resilience relates to the two most immediate indicators of a hearing-impaired adolescent's school experience, namely academic achievement and social interaction. It is this gap that the present study addresses.

Despite the long-standing presence of institutions for the education of children with hearing impairment in Oyo State, and explicit national policy commitments to inclusive and functional education, the learning outcomes of students with hearing impairment in schools for the deaf within Ibadan continue to fall short of expectations. Teachers and special education administrators in the area frequently describe patterns of poor performance in core subjects, low classroom engagement, persistent discouragement, and, in some cases, early withdrawal from schooling among hearing-impaired learners, even where instructional facilities are, in relative terms, more available than in many other parts of the country.

While Nigerian researchers have made commendable efforts to understand the psychological correlates of this underachievement, existing empirical attention has concentrated disproportionately on constructs such as self-esteem, career aspiration, study habits, and gender differences among hearing-impaired learners in states such as Lagos and north-eastern Nigeria. Resilience, despite being strongly implicated by international literature and by Masten's resilience theory as a powerful predictor of achievement among learners facing chronic adversity, has received markedly less attention within the Nigerian special education literature, and appears to be entirely unexamined among students with hearing impairment resident specifically in Ibadan, Oyo State. Without empirical clarity on how resilience relates to learning outcomes in this population, teachers, counsellors, and curriculum planners lack an evidence base on which to design targeted psychosocial interventions, and risk borrowing programmes uncritically from contexts whose psychosocial and educational realities differ meaningfully from those obtaining in Oyo State. It is this gap in knowledge that the present study sets out to address.

The study is anchored on Lev Vygotsky's Sociocultural Theory, as presented in Mind in Society (Vygotsky, 1978). Vygotsky, a Russian psychologist regarded as the founder of sociocultural theory, argued that cognitive development occurs primarily through social interaction, cultural experience, and the use of language and other culturally developed tools, rather than through independent activity alone. Learners, in this view, first encounter new ways of thinking through interaction with teachers, peers, parents, and other more knowledgeable members of their social environment, and only later internalise these processes as independent capabilities. A central construct of the theory is the Zone of Proximal Development (ZPD), the gap between what a learner can accomplish unaided and what the same learner can achieve with appropriate guidance from a More Knowledgeable Other (MKO), typically a teacher or a more competent peer. Within a learner's ZPD, temporary support, or scaffolding, a concept later elaborated by Wood, Bruner, and Ross (1976) but consistent with Vygotsky's original insight, allows the learner to accomplish tasks that would otherwise be out of reach, with that support gradually withdrawn as competence develops. The theory therefore treats development as fundamentally social and mediated: learners are active participants who construct and internalise knowledge through meaningful interaction rather than in isolation.

Vygotsky's framework is directly relevant to the two outcomes examined in this study. Social interaction is, in sociocultural terms, not merely an outcome alongside academic achievement but the very mechanism through which academic competence develops: exchanging ideas, asking questions, receiving feedback, observing competent models, and engaging in collaborative problem-solving all depend on access to responsive, communicative relationships with an MKO. For an adolescent with hearing impairment, that access can be structurally constrained by the availability of interpreters, the sign-language fluency of hearing peers and teachers, and the communication-friendliness of the wider school environment. This suggests a useful theoretical distinction for the present study: whereas resilience, as conceptualised by Masten (2001, 2014), is primarily an individual-level capacity to adapt and cope, Vygotsky's theory locates the levers of academic and social development in the interactional environment itself, the presence or absence of accessible MKOs and scaffolded opportunities for participation. Read together, the two perspectives generate a testable expectation: an adolescent's personal resilience may matter less for academic achievement and social interaction than the sociocultural resources, communication access, interpreter support, and inclusive peer relationships, actually available to convert that resilience into engagement and learning. It is this expectation that the present study's hypotheses were designed to test.

Resilience has been conceptualised in varied ways across research traditions. Early work identified individual characteristics associated with positive outcomes despite risk, such as high self-esteem, problem-solving skill, and easy temperament, while contemporary accounts emphasise resilience as a dynamic process arising from the interaction between individuals and their environments rather than a fixed personality trait (Masten, 2014). The Connor-Davidson Resilience Scale (CD-RISC), developed by Connor and Davidson (2003), is among the most widely used measures of the construct, conceptualising resilience as comprising the ability to adapt to change, cope with whatever comes, see the humorous side of difficulty, manage stress, recover from illness or hardship, achieve goals, stay focused under pressure, know where to seek help, resist discouragement after failure, and handle

unpleasant feelings. Its ten-item version, the CD-RISC-10, has been validated in adolescent populations and shown strong psychometric properties (Campbell-Sills & Stein, 2007; Nartova-Bochaver et al., 2021).

Among adolescents with hearing impairment specifically, resilience has been identified as a key factor in educational and social success. Williamson (2015), studying Black deaf students, highlighted resilience as central to educational achievement despite obstacles, while Tsegaye (2022) found that hearing adolescents demonstrate significantly higher average resilience scores than deaf adolescents, with deaf female adolescents showing particularly low resilience, suggesting a need for targeted support. Resilient deaf and hard-of-hearing adolescents are theorised to be better equipped to initiate and sustain social interaction despite communication barriers, persist with academic tasks, and seek support when it is needed.

Learning outcomes refer to the measurable results of educational experience and are conceptualised in this study as comprising two dimensions, academic achievement and social interaction. Academic achievement typically denotes a student's performance on assessments of knowledge and skill in specific subject areas, commonly measured through grades, standardised test scores, or teacher ratings. For deaf and hard-of-hearing students, achievement gaps relative to hearing peers have been documented across reading, mathematics, science, and social studies (Marschark, Shaver, Nagle, & Newman, 2015), with language fluency, communication mode, school placement, family resources, early intervention, and access to support services identified as contributing factors. Beyond instructional and environmental influences, psychological variables such as self-esteem, self-efficacy, and emotional well-being shape how adolescents with hearing impairment approach learning tasks, cope with communication-related setbacks, and persist academically.

Social interaction, the second dimension, encompasses the quality and frequency of a student's engagement with peers and teachers, including peer relationships, communication effectiveness, participation in group activities, and a sense of belonging within the school community. Children and adolescents with hearing loss have been documented to experience reduced social competence, fewer friendships, lower peer acceptance, and greater loneliness than their hearing peers (Most, Ingber, & Heled-Ariam, 2012), arising from communication barriers, limited opportunity for incidental social learning, and reduced access to peer conversation. Positive social interaction is valuable both as an outcome in its own right and as a facilitator of academic engagement, since socially connected students participate more readily in classroom activities, collaborate with peers, and seek help when it is needed.

Marschark, Shaver, Nagle, and Newman (2015) examined predictors of learning outcomes among approximately 500 deaf and hard-of-hearing secondary students using a descriptive survey design and purposive sampling. Attendance at regular secondary schools and stronger spoken language were associated with higher test scores, while an additional learning disability diagnosis, mild hearing loss, and minority ethnic status predicted lower achievement; resilient students in the sample also demonstrated greater persistence, adaptability, and more positive attitudes toward learning. The study is relevant to the present research in its shared focus on resilience and learning outcomes among hearing-impaired learners, though it addressed DHH students generally rather than the Ibadan-specific population examined here.

In a related quantitative study, John (2021–2023) surveyed 120 hearing-impaired students aged 13 to 20 in four districts of Kerala, India, using the Kessler Psychological Distress Scale and the 14-item Resilience Scale. The sample showed, on average, mild psychological distress alongside a high level of resilience, with significant gender and educational-category differences and a significant relationship between distress and resilience overall. Zemedkun (2025) investigated emotional regulation and academic resilience among 125 hearing-impaired primary school students in Dessie, Ethiopia, using questionnaires and academic records analysed through correlation, one-sample t-tests, and multiple regression; academic resilience correlated positively and significantly with academic performance ($r = .478$, $p < .001$), and both emotional regulation and academic resilience emerged as significant predictors of achievement. Similarly, Muhammad, Irfan, and Arif (2026) developed a resilience scale specific to students with hearing impairment across ten protective-factor domains, including self-esteem, self-efficacy, and stress-management skill, and found a positive relationship between resilience and learning outcomes, despite documenting generally low resilience levels in their secondary-school sample. Taken together, these studies suggest that a positive resilience–achievement relationship has been observed in several other national contexts, which makes its presence or absence in the Ibadan setting an informative empirical question.

Qi, Zhang, Nie, and Du (2024) examined how resilience relates to self-esteem and social interaction among 657 children and adolescents with hearing impairment across fourteen schools in Hubei Province, China, using ANOVA and Pearson correlation. Resilience was positively correlated with self-esteem, which in turn was associated with improved social interaction among peers ($r = .27$, $p < .01$), suggesting that resilience may support social outcomes indirectly, through its association with self-esteem, rather than directly.

Most, Ingber, and Heled-Ariam (2012) examined social competence, loneliness, and social support among deaf and hard-of-hearing children in inclusive settings, finding higher loneliness and lower social competence relative to hearing peers, with stronger language skill, greater self-esteem, and supportive peer relationships associated with better social outcomes; although resilience was not measured directly, these correlates are conceptually close to resilience constructs. Bat-Chava and Deignan (2001) found that children with cochlear implants who communicated orally faced particular difficulty interacting with signing deaf peers, while those in mainstream settings sometimes experienced isolation from hearing peers, with more resilient children better able to persist in social interaction despite these obstacles. Kluwin, Stinson, and Colarossi (2002) compared deaf students in mainstream and separate-school settings, finding that mainstreamed students had more contact with hearing peers but reported less intimate friendships, while students in separate deaf schools reported closer friendships but greater isolation from the hearing community; the authors suggested

that resilience helps adolescents with hearing impairment adapt to whichever social opportunities and constraints their placement affords. Together, these studies indicate that resilience has most often been found to relate to social interaction indirectly, through self-esteem or coping style, rather than as a direct, freestanding predictor, a pattern the present study's design allows it to test directly.

Purpose of the Study

The general purpose of this study is to investigate resilience as a psychological correlate of learning outcomes among adolescents with hearing impairment in Ibadan, Oyo State. Specifically, the study sought to:

1. examine the relationship between resilience and academic achievement among adolescents with hearing impairment in Ibadan, Oyo State.
2. examine the relationship between resilience and social interaction among adolescents with hearing impairment in Ibadan, Oyo State.

Research Hypotheses

The following null hypotheses were tested at the 0.05 level of significance:

H_{01}: There is no significant relationship between resilience and academic achievement among adolescents with hearing impairment in Ibadan.

H_{02}: There is no significant relationship between resilience and social interaction among adolescents with hearing impairment in Ibadan.

Methodology

The study adopted a descriptive research design of the correlational type. Correlational research identifies the direction and strength of the relationship between variables without manipulating them or establishing cause and effect (Creswell, 2014), which suited a study seeking to establish whether, and how strongly, resilience relates to academic achievement and social interaction among adolescents with hearing impairment in Ibadan. The population comprised all adolescents with hearing impairment enrolled in special secondary schools in Ibadan. A total of 30 adolescents were drawn from two special schools, Methodist Grammar School Deaf Unit, Bodija, Ibadan-North Local Government Area, and Ijokodo School for the Deaf, Ibadan-North Local Government Area, using a census approach in which all willing, accessible in-school adolescents across both schools were included as respondents.

Two of the four instruments used in the wider dissertation project from which this paper is drawn were directly relevant to the variables examined here. The Academic Achievement Proforma recorded each respondent's grades in core subjects (English and Mathematics) from the 2025/2026 academic session, supplemented, where available, by aggregate scores or grade point averages. Resilience was measured using the Connor-Davidson Resilience Scale (CD-RISC-10), developed by Campbell-Sills and Stein (2007) as a brief version of the original 25-item CD-RISC (Connor & Davidson, 2003), with items rated on a 4-point scale from Strongly Agree to Strongly Disagree and scored 4 to 1. Social interaction was measured using a Social Interaction Scale (SIS) adapted from existing measures of peer relationships, social participation, and communication effectiveness among adolescents with hearing impairment, with items rated Always, Sometimes, Rarely, or Never and scored 4 to 1.

Data were analysed using Pearson Product-Moment Correlation (PPMC) to test the relationship between resilience and each of the two learning-outcome variables, at the 0.05 level of significance. The decision rule specified that a null hypothesis would be rejected where the observed p-value was less than or equal to 0.05, and retained where it exceeded 0.05.

RESULTS

Analysis Of Data

Table 1: Distribution of respondents based on gender.

Gender	Frequency	Percentage
Male	17	56.67
Female	13	43.33
Total	30	100.0

Table 1 shows the distribution of respondents based on gender 17 of the respondents representing 56.67% were male while 13 of the respondents were female representing 43.33%. From the analysis above, it is apparent that male respondents are more than female.

H_{01}: There is no significant relationship between resilience and academic achievement among adolescents with hearing impairment in Ibadan.

Table 2: Pearson Product Moment Correlation shows the significant relationship between resilience and academic achievement among adolescents with hearing impairment in Ibadan

Variables	n	MEAN	SD	r-cal	df	p-value	DECISION
Resilience		36.07	2.46				
	30			-.063	28	0.739	Not Sig
Academic Achievement		52.66	6.70				

Table 2: Pearson Product-Moment Correlation between resilience and academic achievement. The observed p-value (0.739) exceeded the fixed significance level (0.05); H_{01} was therefore not rejected. There was no statistically significant relationship between resilience and academic achievement among adolescents with hearing impairment in Ibadan.

H_{02}: There is no significant relationship between resilience and social interaction among adolescents with hearing impairment in Ibadan.

Table 3: Pearson Product Moment Correlation shows the significant relationship between resilience and social interaction among adolescents with hearing impairment in Ibadan

Variables	n	MEAN	SD	r-cal	df	p-value	DECISION
Resilience		36.07	2.46				
	30			0.143	28	0.449	Not Sig
Social Interaction		34.67	2.31				

Table 3: Pearson Product-Moment Correlation between resilience and social interaction. The observed p-value (0.449) exceeded the fixed significance level (0.05); H_{02} was therefore not rejected. There was no statistically significant relationship between resilience and social interaction among adolescents with hearing impairment in Ibadan.

DISCUSSION OF FINDINGS

The finding that resilience showed no significant relationship with academic achievement, $r(28) = -.063$, $p > .05$, suggests that resilience, understood as a personal capacity to cope with the emotional and social demands of hearing loss, may operate largely at the level of psychological adjustment rather than academic skill. An adolescent can cope well with the daily frustrations of communication barriers without that coping capacity translating into stronger literacy, numeracy, or classroom performance, since achievement depends more directly on access to accessible instruction, appropriately trained teachers, and usable learning materials than on emotional coping ability alone. This result contrasts with the positive resilience achievement relationships reported by Zemedkun (2025) and Muhammad, Irfan, and Arif (2026); a good explanation, consistent with the sociocultural framework guiding this study, is that in settings where interpreter support and specialised instructional resources are more readily available, resilience has more academic ground to act on, whereas a resilient but instructionally under-resourced adolescent in Ibadan has limited opportunity to convert coping capacity into improved academic outcomes.

Similarly, resilience showed no significant relationship with social interaction, $r(28) = .143$, $p > .05$. Read through Vygotsky's Sociocultural Theory, this finding is consistent with the view that social interaction depends less on an adolescent's own emotional resilience than on the availability of a More Knowledgeable Other and an accessible communicative channel through which interaction can actually occur. An adolescent may be resilient and genuinely want to interact, yet remain constrained by the absence of sign-language interpreters or by hearing peers' limited fluency in any shared mode of communication, regardless of how well that adolescent copes emotionally with hearing loss. This is broadly consistent with Most, Ingber, and Heled-Ariam (2012) and Kluwin, Stinson, and Colarossi (2002), who linked social outcomes more directly to language skill, peer relationships, and educational placement than to resilience per se, and with Qi et al. (2024), whose data suggested that resilience relates to social interaction indirectly, through self-esteem, rather than as a direct predictor. The Ibadan setting's more constrained communication infrastructure

may mean that this indirect pathway, and the direct pathway tested here, are both structurally limited in ways that individual resilience alone cannot overcome.

Taken together, the two findings support a reading in which academic achievement and social interaction among these adolescents are shaped more by the sociocultural resources actually available to them, interpreters, trained teachers, communication-accessible peers, than by an internal, individually held trait. This is not a claim that resilience is unimportant; rather, it suggests that resilience may be a necessary but insufficient condition for improved outcomes, one whose benefits only materialise where the surrounding interactional environment gives it something to act upon.

RECOMMENDATION

1. School authorities should employ qualified Nigerian Sign Language interpreters and provide basic sign-language training to all teachers working with hearing-impaired students, so that the communicative channel Vygotsky's theory identifies as essential to learning is actually available.
2. Special educators should design structured programmes that deliberately foster interaction between hearing and hearing-impaired adolescents, rather than leaving social integration to develop informally.
3. Schools should provide quiet classrooms, adequate lighting, and visual alert systems to support a learning environment that is genuinely accessible to hearing-impaired learners.
4. Counsellors and curriculum planners should continue to support learners' resilience, but should not treat resilience-building as a substitute for investment in communication access and inclusive instructional practice.

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