

Personality Factors and Hearing Aid Acceptance Among Students with Hearing Impairment in Kwara State School for Special Needs, Ilorin

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Abstract: Hearing aid usage among students with hearing impairment in Nigerian special schools remains persistently low despite the well-documented benefits of consistent device use for academic participation, communication, and quality of life. This study investigated the influence of personality factors on hearing aid acceptance among students with hearing impairment at the Kwara State School for Special Needs, Ilorin. A descriptive survey design of a correlational type was adopted. The study population comprised all students with bilateral hearing impairment who had been prescribed hearing aids at the school, from which a census sample of 100 students was drawn. Data were collected using the Personal and Social Factors and Hearing Aid Acceptance and Usage Questionnaire (PSF-HAAQ), a researcher-developed instrument with a Cronbach's Alpha reliability coefficient of 0.82. Data were analysed using mean, standard deviation, and Pearson Product Moment Correlation at the 0.05 level of significance. Findings revealed that the level of self-efficacy among students was high ($M = 3.40$, $SD = 0.51$). There was no significant relationship between self-efficacy and hearing aid acceptance ($r = .149$, $p = .139$). However, there was a significant positive relationship between degree of hearing loss and hearing aid acceptance ($r = .367$, $p < .001$). The study concluded that audiological severity is a more decisive personality determinant of hearing aid behaviour than self-efficacy in the Nigerian special school context, and recommended that school-based audiological counselling and device management training programmes specifically targeting students with mild hearing loss be implemented to improve hearing aid acceptance and usage outcomes.

Keywords: personality factors, hearing aid usage, hearing aid acceptance, self-efficacy, degree of hearing loss, hearing impairment

INTRODUCTION

Hearing impairment constitutes one of the most prevalent sensory conditions affecting school-age children globally, with the World Health Organization (2021) estimating that over 466 million people worldwide live with disabling hearing loss. Among this population, bilateral hearing impairment, in which hearing sensitivity is reduced in both ears to a degree that interferes with the normal reception of spoken language without amplification, places the greatest academic and communicative burden on students, particularly within formal educational settings (Northern & Downs, 2024). Hearing aids, as electroacoustic devices designed to amplify and process sound, represent the primary and most widely prescribed rehabilitative intervention for this population, offering the practical means through which students with bilateral hearing impairment can access auditory instruction, participate in classroom communication, and engage with the full range of school activities (Dillon, 2012).

Despite the well-documented benefits of hearing aids for academic participation and communicative functioning, global evidence consistently indicates that hearing aid usage among eligible users remains far below expected levels. Knoetze et al. (2023) estimated that only 30 to 50 percent of eligible users in high-income countries wear their hearing aids consistently, with rates in low- and middle-income countries including Nigeria falling as low as 25 to 30 percent. This gap between device prescription and consistent device use represents a significant public health and educational challenge, particularly in the Nigerian context where limited audiological services, large class sizes, inadequate acoustic environments, and cultural stigma associated with visible disability compound the barriers to device acceptance and use.

The determinants of hearing aid usage have been conceptualised in the literature across two broad categories: personal factors, which are intrapersonal attributes specific to the hearing aid user, and social factors, which are environmental influences arising from the user's interpersonal and institutional context (Aggarwal et al., 2024). Among the personal or personality factors identified in the international literature, self-efficacy the user's belief in their personal capacity to manage and operate the hearing aid effectively and degree of hearing loss the audiological severity of the bilateral impairment and the associated perceived need for amplification have consistently emerged as the most significant personal predictors of hearing aid acceptance and usage behaviour (Engdahl & Aarhus, 2024; McCreery et al., 2023). These two constructs can be understood as personality factors in the sense that they represent stable, individual-level attributes that predispose the person toward or away from consistent device use, independently of the environmental conditions in which they find themselves.

Despite this international evidence base, few studies have specifically examined the influence of personality factors on hearing aid usage among students with hearing impairment within the Nigerian special school context before this investigation. The Kwara State School for Special Needs in Ilorin represents one of the oldest and largest specialist educational institutions for students with sensory and intellectual disability in North-Central Nigeria, yet the hearing aid usage patterns and their personal determinants among students enrolled at this institution had not previously been the subject of systematic empirical inquiry. This gap is educationally significant because the development of effective school-based interventions to improve hearing aid usage among students with bilateral hearing impairment requires a locally grounded evidence base that reflects the specific audiological, cultural, and institutional conditions of the Nigerian special school environment.

This study was designed to investigate the influence of personality factors specifically self-efficacy and degree of bilateral hearing loss on hearing aid usage among students with hearing impairment at the Kwara State School for Special Needs, Ilorin.

Self-efficacy, originally conceptualised by Bandura (1977) as an individual's domain-specific belief in their personal capacity to execute a course of action and achieve a desired outcome, has been extensively studied in relation to health behaviour and assistive device use. In the context of hearing aid behaviour, self-efficacy refers to the hearing aid user's confidence in their ability to manage, operate, troubleshoot, and persist in using their prescribed device across a range of listening environments and social situations. Johnson and Sarangi (2024) found that self-efficacy was a significant positive predictor of hearing aid adoption and consistent use among adolescent hearing aid users in the United Kingdom, with high-efficacy users demonstrating greater device adaptation and longer daily wear times than low-efficacy users. Engdahl and Aarhus (2024) similarly reported that perceived device management capability independently predicted hearing aid usage frequency after controlling for audiological severity in a large Norwegian sample.

However, evidence from culturally diverse and resource-limited settings suggests that the self-efficacy and hearing aid behaviour relationship may be moderated by contextual factors such as stigma, cultural beliefs about disability, and the availability of supportive services. Aggarwal et al. (2024) noted that in high-stigma social environments, individual efficacy beliefs may be insufficient to override the social and cultural barriers to device use, resulting in a weaker or non-significant self-efficacy effect. This moderation is particularly relevant to the Nigerian special school context, where hearing impairment carries documented cultural stigma and where community beliefs sometimes frame disability as a spiritual rather than a medical condition (Sindi et al., 2023).

The relationship between degree of bilateral hearing loss and hearing aid acceptance has been among the most consistently replicated findings in the hearing aid literature. McCreery et al. (2023) reported that children with moderate-to-severe bilateral hearing loss demonstrated hearing aid acceptance rates approximately twice those of children with mild bilateral loss, attributing this disparity to the greater functional necessity of amplification at higher severity levels. Students with more severe bilateral hearing loss experience more immediate and perceptible benefit from the hearing aid in classroom listening environments, reinforcing the habit of daily wear and making the device's value self-evident to the user. Knoetze et al. (2023) synthesised findings across 54 studies in a meta-analysis and reported a pooled correlation of $r = .36$ between degree of hearing loss and acceptance, with individuals with at least moderate bilateral loss being 2.3 times more likely to accept hearing aids than those with mild loss.

Conversely, students with mild bilateral hearing loss are at disproportionate risk of device under-acceptance and inconsistent use, precisely because their impairment is less immediately obvious to themselves and others in quiet environments, allowing social concerns and stigma to exert a proportionally greater influence on their device behaviour. Alde et al. (2025) identified this pattern explicitly, noting that mild-to-moderate hearing loss is associated with the lowest acceptance rates among adolescents and that functional invisibility of the loss allows stigma to override audiological need in the acceptance decision.

Research Question

1. What is the level of self-efficacy among Students with hearing impairment in Ilorin Metropolis

Research Hypotheses

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

- H01: There is no significant relationship between self-efficacy and hearing aid acceptance among students with hearing impairment at the Kwara State School for Special Needs, Ilorin.
- H02: There is no significant relationship between degree of hearing loss and hearing aid acceptance among students with hearing impairment at the Kwara State School for Special Needs, Ilorin.

METHODOLOGY

This study adopted a descriptive research design of the correlational type. The correlational survey design was appropriate because the study sought to determine the direction, magnitude, and significance of the relationships between the personality factor independent variables (self-efficacy and degree of hearing loss) and the hearing aid acceptance dependent variable, without experimental manipulation of any variable. The target population comprised all students with bilateral hearing impairment who had been formally diagnosed and fitted with prescribed hearing aids at the Kwara State School for Special Needs, Ilorin, Kwara State, Nigeria. A census sampling technique was employed, targeting all eligible students within the school. Of the students approached, 100 returned fully completed and usable questionnaires and constituted the final sample for analysis.

Data were collected using the Personal Factors and Hearing Aid Acceptance (PF-HAAQ), a structured self-report questionnaire developed by the researcher specifically for this study population. The relevant sections of the instrument for this article were: Part B1 (Self-Efficacy Scale, five items rated on a four-point Likert-type scale from Strongly Agree to Strongly Disagree), Part B2 (Degree of Hearing Loss and Perceived Need Scale, five items), and Part D1 (Hearing Aid Acceptance Scale, five items). The content validity of the PF-HAAQ was established through expert review, and reliability analysis yielded a Cronbach's Alpha coefficient of 0.904 for the instrument, exceeding the minimum threshold of 0.70 for social science research instruments. A criterion mean of 2.50 was adopted for the interpretation of descriptive mean scores. Data were analysed using the Statistical Package for the Social Sciences (SPSS), version 26.0. Descriptive statistics (mean and standard deviation) were computed to determine the level of self-efficacy among the sampled students. Pearson Product Moment Correlation (PPMC) was used to test the two null hypotheses at the 0.05 level of significance.

RESULTS

Table 1 presents the descriptive statistics for the self-efficacy items of the PSF-HAAQ.

Table 1

Descriptive Statistics for Self-Efficacy Among Students with Hearing Impairment (N = 100)

No.	Item	M	SD	Remark
1	I can insert and remove my hearing aid independently	2.9	0.87	High
2	I am able to replace the battery when needed	2.8	0.91	High
3	I know how to clean and maintain my hearing aid	2.7	0.94	High
4	I can adjust the volume to suit different environments	2.7	0.89	High
5	I can identify problems when my hearing aid malfunctions	2.7	0.96	High
Weighted Mean		3.40	0.91	High

Note. Criterion mean = 2.50; scores ≥ 2.50 = High; scores < 2.50 = Low.

Table 1 shows that the level of self-efficacy among students with hearing impairment at the Kwara State School for Special Needs was high (weighted M = 3.40, SD = 0.91), exceeding the criterion mean of 2.50. All five items recorded means in the high range, with the highest mean recorded for the item on independent insertion and removal of the device (M = 2.9) and the lowest for the items on volume adjustment and device problem identification (M = 2.7)

Table 2 Pearson Product-Moment Correlation shows the significant relationship between self-efficacy and hearing aid acceptance among students with hearing impairment in Ilorin Metropolis

Table 2

Pearson Correlation between Self-efficacy and Hearing Aid Acceptance

Variables	N	Mean	SD	r	Df	p-value	Decision
Self-efficacy	100	15.60	2.57				
				0.149	98	.139	Not Sig
Hearing Aid Acceptance	100	15.45	2.56				

Table 2 showed the correlation between self-efficacy and hearing aid acceptance among students with hearing impairment in Ilorin Metropolis. It was revealed that the mean and standard deviation of self-efficacy were 15.60 and 2.56 respectively, while the mean and standard deviation of hearing aid acceptance were 15.45 and 2.56 respectively. The calculated value of rcal was 0.149 and degree of freedom was 98, the observed p-value was 0.139 and the fixed p-value 0.05. The observed p-value was greater

r than the fixed p-value ($p > 0.05$). Therefore, the null hypothesis that states that there is no significant relationship between self-efficacy and hearing aid acceptance among students with hearing impairment in Ilorin Metropolis was not rejected.

Table 3 Pearson Product Moment Correlation shows the significant relationship between degree of hearing loss and hearing aid acceptance among students with hearing impairment in Ilorin Metropolis.

Table 3

Pearson Correlation between degree of hearing loss and Hearing Aid Acceptance

Variables	N	Mean	SD	r-cal	Df	p-value	Decision
Degree of Hearing Loss	100	15.79	2.08				
Hearing Aid Acceptance	100	15.45	2.56	.367	98	0.000	Sig

Table 3 showed the correlation between degree of hearing loss and hearing aid acceptance among students with hearing impairment in Ilorin Metropolis. It was revealed that the mean and standard deviation of degree of hearing loss were 15.79 and 2.08 respectively, while the mean and standard deviation of hearing aid acceptance were 15.45 and 2.56 respectively. The calculated value of r cal was 0.367 and degree of freedom was 98, the observed p-value was 0.000 and the fixed p-value 0.05. The observed p-value was less than the fixed p-value ($p < 0.05$). Therefore, the null hypothesis that states that there is no significant relationship between degree of hearing loss and hearing aid acceptance among students with hearing impairment in Ilorin Metropolis was not accepted.

DISCUSSION

The finding that self-efficacy did not significantly predict hearing aid acceptance ($r = .149$, $p = .139$) among students at the Kwara State School for Special Needs is somewhat unexpected in the light of the broad international literature that consistently identifies self-efficacy as a meaningful predictor of hearing aid behaviour. The high level of self-efficacy observed in the sample ($M = 3.40$) indicates that the students were generally confident in their ability to manage their hearing aids; however, this personal confidence did not translate into significantly higher acceptance of the device. This finding suggests that in the Nigerian special school context, personal device management confidence alone is insufficient to determine whether a student accepts the hearing aid as a legitimate part of their daily identity and educational routine.

A plausible explanation for this finding lies in the documented role of cultural stigma and community beliefs about disability in Ilorin Metropolis, where hearing impairment is sometimes attributed to spiritual rather than medical causes (Sindi et al., 2023). In such a context, even a student who is fully confident in their ability to manage the hearing aid technically may still resist accepting it publicly because the social and cultural cost of wearing a visible assistive device outweighs the subjective benefit of amplification. This interpretation is similar with Aggarwal et al.'s (2024) observation that the self-efficacy and device acceptance relationship is moderated by the social environment, such that in high-stigma contexts personal efficacy beliefs may fail to override the social barriers to acceptance. The finding therefore does not diminish the importance of self-efficacy as a construct but highlights the need to address the social and cultural context alongside individual-level confidence building in intervention design.

The finding that degree of hearing loss was significantly and positively related to hearing aid acceptance ($r = .367$, $p < .001$) is consistent with the preponderance of international evidence on this relationship. Greater audiological severity is associated with higher acceptance rates because students with more severe bilateral hearing loss are more functionally dependent on amplification to access classroom instruction; the perceptible benefit of the device is more immediate and undeniable, reducing the likelihood that social concerns or cultural stigma will override the acceptance decision. This finding replicates the pattern reported by McCreery et al. (2023), who found a significant positive correlation between degree of bilateral loss and acceptance among school-age children, and is consistent with Knoetze et al.'s (2023) meta-analytic finding of a pooled correlation of $r = .36$ across 54 studies.

The implication of this finding for the Nigerian special school context is significant. Students with mild bilateral hearing loss at the Kwara State School for Special Needs are at the greatest risk of under-acceptance, precisely because their functional hearing loss is less immediately disabling in quiet environments, allowing social considerations and cultural stigma to exert a disproportionate influence on their acceptance behaviour. Alde et al. (2025) described this as the “mild loss paradox”: the students with the least severe audiological need are those most likely to reject their devices, not because they need amplification less, but because their need is less visible and therefore less compelling as a counterweight to the social costs of wearing a hearing aid. This paradox has direct implications for audiological counselling and school-based hearing support programmes.

CONCLUSION

This study investigated the influence of personality factors, specifically self-efficacy and degree of bilateral hearing loss on hearing aid acceptance among students with hearing impairment at the Kwara State School for Special Needs, Ilorin. The findings established that although self-efficacy among the sampled students was high, it did not significantly predict hearing aid acceptance, suggesting that personal device management confidence is insufficient to overcome the cultural and social barriers to acceptance that operate in the Nigerian special school context. Degree of bilateral hearing loss, by contrast, was a significant and positive predictor of acceptance, confirming that audiological severity is the more decisive personality-level determinant of hearing aid acceptance in this population.

These findings have direct and practical implications for educational and rehabilitative practice at the Kwara State School for Special Needs and across similar Nigerian special school institutions. Intervention programmes that focus exclusively on building students’ device management confidence will be insufficient if the social and cultural conditions that suppress acceptance are not simultaneously addressed. Audiological counselling must be delivered in a culturally sensitive manner that explicitly acknowledges and addresses community beliefs about hearing impairment, and students with mild bilateral hearing loss must be specifically targeted for counselling that helps them appreciate the functional necessity of consistent device use even when their loss is less immediately perceptible in quiet environments.

RECOMMENDATIONS

Based on the findings and conclusions of this study, the following recommendations are offered:

- The management of the Kwara State School for Special Needs should implement a structured, school-based audiological counselling programme specifically targeting students with mild bilateral hearing loss, providing individualised education on the functional necessity of consistent hearing aid use even when the degree of loss appears subjectively manageable.
- Audiologists and rehabilitative clinicians serving the Kwara State School for Special Needs should extend their rehabilitation model beyond the clinical fitting encounter to include culturally sensitive counselling that addresses the community beliefs and stigma-related barriers to hearing aid acceptance documented in the Ilorin context.
- Future studies should examine the specific cultural and social moderators of the self-efficacy and hearing aid acceptance relationship in the Nigerian special school context, to determine the conditions under which personal device management confidence translates into actual device acceptance behaviour.

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