

Perceptions on Hearing Aid Use and Its Influence on Self-Esteem of Learners With Hearing Impairment in Integrated Settings in Nairobi City County, Kenya

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Abstract

Hearing impairment has been linked to low self-esteem in children. Many teachers have noted that a growing number of students are unwilling to wear hearing aids, even though non-governmental groups such as the Starkey Ear Foundation provide them free of charge. The study aimed to discover how learners with hearing impairment in integrated units in Nairobi City County, Kenya, felt about hearing aid use and how it affected their self-esteem. Peter Burke's Identity Control Theory directed the research. The study was conducted using a descriptive survey design. Headteachers, teachers in charge of learners with hearing impairment, parents, and learners with and without hearing impairment were the target population. A total of 90 participants were surveyed, including 8 headteachers, 15 parents, 8 teachers, 51 learners with hearing impairment who used hearing aids, and 8 learners who did not have hearing problems. Data was gathered by the distribution of questionnaires to learners, parents, and instructors, as well as a complementing interview with the headteachers. Pilot research was undertaken in a Nairobi primary school. Descriptive statistics were used to analyze the quantitative data. The computer programme SPSS version 22.0 was used to do

inferential statistics. Thematic analysis was done on qualitative data. The study discovered that learners with hearing loss had generally positive attitudes concerning hearing aid use. Hearing aid use had a weak positive influence on the self-esteem of learners with hearing impairment as per the study's overall findings. The study recommends that the government provide schools with speech therapists/audiologists to follow up on language intervention of learners with hearing impairment who are wearing hearing aids, as well as encourage collaboration of a multi-disciplinary team that includes teachers, parents, headteachers, audiologists/speech therapists to ensure that they benefit from hearing aid use and improve their self-esteem.

Keywords: hearing aids, self-esteem, learners, hearing impairment, integrated settings

1. Introduction

According to the World Health Organization (2018), there are roughly 466 million people worldwide with Disabling Hearing Loss (DHL), 34 million of them are children. Disabling hearing loss is defined as a chronic condition in which the better hearing ear is greater than 40 decibels in adults and greater than 30 decibels in children. DHL is prevalent in 1.9 percent of children in Sub-Saharan Africa. Hearing Impairment (H.I) is defined as hearing loss, whether permanent or temporary, according to the Individuals with Disabilities Education Act American Law and Statutes (2004). HI has a deleterious impact on a child's academic performance but is not associated with deafness. Thus according to Omondi, Ogol, Otieno, and Macharia (2007), 2.3 % to 5.6 % of Kenyan schoolchildren have hearing loss. Failure to recognise and properly manage hearing impairment that is congenital or occurs at birth within the first year of life has been associated with severe permanent linguistic cognition and literacy skills (World Health Organization, 2018). Assessment of a hearing loss should begin early, as stated by WHO (2016), so that intervention may begin and the child can reach his or her full potential. The intervention usually takes the form of cochlear implants, hearing aids, and other assistive technologies, as well as sign language, captioning, and other forms of educational and social support.

In industrialised countries such as Australia, Poland, the United Kingdom, and the United States, universal neonatal hearing screening (UNHS) has been accepted as a standard of care for neonates. Hearing loss is assessed at one month, diagnosed at three months, and treated at six months in these Western countries. Unfortunately, in developing countries, the programme has been slower (Olusanya, Swanepoel, Castillo, Habib, Mukari, Martinez & McPherson, 2007).

A study by Aires, Barbosa, Farias, Linhares and Griz (2013) in Brazil found that more than 86% of health care attendants had no training on hearing and testing infants. In South Africa, Primary Health Care (PHC) which includes early hearing screening is largely spearheaded by nurses and it is the first point of contact for at least 85% of the population within the health system (Kanji, 2016). A study done in Nigeria by Olusanya (2008) found that hearing screening by PHC was successful as the majority of children were brought for immunizations by parents irrespective of their place of birth. In Kenya, a study by Muriithi (2011), states that the assessment process is carried out in hospitals and sometimes at Educational Assessment

and Resource Centers. The study further indicates that there is a shortage of professionals, facilities and equipment limits the audiological process.

Only 1 in 3 or 4 people with hearing loss in the Western world own hearing aids. Hearing loss affects as few as one out of every twenty people in low and middle-income nations (Vinaya, Berth, Vinay, Tayebah, Dvid, Rajalakshmi & Per, 2015). According to Wolters, Knoors, Cillessen & Verhoeven (2014), hearing aids produced are anticipated to meet less than 10% of worldwide needs. It is estimated that developing countries require 32 million hearing aids annually but only receive three-quarters of a million. Hearing aid non-uptake and non-use has been linked to factors such as perceived hearing disability, cost, and stigma. Children in Kenya have to rely on hearing aid donations from Non-Governmental Organisations or get contented staying without one. According to Kilonzo (2016), the plight of Kenyans who suffer from hearing impairment as a result of neglect from the state and the insurers is about 640,000 with hearing impairment. These people need devices like hearing aids and have to meet their costs. The majority of insurance providers found locally including, National Hospital and Insurance Fund (NHIF), do not cover hearing problems. Hearing aid costs approximately Kenya shillings (Kshs) 30,000 per piece. For the hearing aid to continue being effective, batteries need to be replaced at a cost.

According to the International Classification of Functioning Disability and Health, as cited by WHO (2001), there are two perspectives on viewing disability. The Western World culture attributes disability to a medical cause, while most cultures in developing countries take a cultural view as the cause. In Nigeria, there is a common saying that "childlessness is better than being saddled with an abnormal child (McPherson, 2008). This is an example indicating the stigma attached to a disability. In Tanzania and Coastal parts of Kenya, disability is attributed to a curse, superstitions, the will of God, witchcraft and an evil spirit called "Jinni" (Ndungu & Kinyua, 2007). All of these result in non-hearing aid compliance despite the scarcity of the amplification devices and the prohibitive costs (McPherson, 2008).

Parents, teachers, and peers with children with hearing impairment are important stakeholders in the management and use of hearing aids. Parents are the first teachers to their children. The parent's emotional response to finding out that their child has hearing impairment affects both family adjustment and the child's outcome (Keilmann, Limberger & Mann, 2007)). Teachers on the other hand are the ones who spend most of their time with the children. A study by Kajirwa (2009) reported that there was a negative attitude towards hearing impaired learners due to society's perception of people with hearing impairment and lack of early intervention.

Most adolescents seek to identify themselves with their peers. Sumter, Bokhorst, Steinberg and Westernberg (2009), assert that social identity is validated through social interactions. If an adolescent perceives that he or she is not attractive or looks different from her peers, the hearing aid use will be negated. Alternatively, an adolescent with high self-esteem, will use their amplification and provide their peers with feedback on supportive strategies for conversations and discussions (Kent & Smith, 2006).

2. Statement of the Problem

The relationship between self-esteem and academic performance of students *with* hearing impairment was established that while these learners had high self-esteem, their academic performance was low Bunyasi (2010). Accessible documented research has generally focused on learners' social ties, but it has not looked at how technical gadgets, such as hearing aid use and perceptions of their use affect learners' self-esteem. This study will look at how learners with hearing impairment perceive hearing aid use and how it affects their self-esteem in integrated settings.

3. Purpose of the Study

The purpose of the study was to establish the perceptions of hearing aid use and its influence on self-esteem of learners with hearing impairment in integrated units in Nairobi City County Kenya.

4. Significance of the Study

The findings of the study have both practical and theoretical benefits for the psychosocial adjustment of children with hearing impairment. Theoretically, it will contribute to the knowledge base about how children with hearing impairment seek to protect their identity. This is through changing their behaviour in the realm of social structure and how other individuals can help them to develop positive feelings by portraying positive perceptions towards them. The study may be of practical benefit to the Ministry of Education, Ministry of Health, Kenya National Association for the Deaf and Non-governmental organisations by ensuring there is a follow up on children with hearing impairment, parents and teachers on hearing aid management and use. The results will enlighten headteachers, teachers and parents on how to promote the self-esteem of learners with hearing impairment through guidance and counseling on hearing aid use.

5. Theoretical Framework

This research is based on Peter Burke's Identity Control Theory (Burke, (2016). Within the field of social structure, the theory focuses on the nature of people's identities and the relationship between their identities and their behavior. This theory is constructed from symbolic interaction views where peoples' conduct is chosen based on how it corresponds to the meaning of one's identity. When people are acting according to I.C.T, they reflect on their identity based on whether or not others approve or disapprove of them. If a person does not like how others react, he or she will look for ways to change their views or character to produce the desired effect. The fundamental value of this idea is that it explains how individuals and those around them might avoid negative sentiments.

People who are close to these people have the potential to be more sensitive to avoid negative sensations. The identity control theory is made up of four parts: an identity standard, an input, a comparator, and an output.

Children with hearing impairment using hearing aids choose to either belong to the Deaf or can choose to be bicultural. These groups have self-protecting properties to combat stigma.

Children having been fitted with hearing aids and having been counseled on stigma related to hearing loss and hearing aid effects will seek to incorporate hearing aid use in their everyday life. According to this theory, the parents, teachers and peers will be careful to portray the positive perceptions towards hearing aid use. When children with H. I encounter perceived stigma towards hearing aid use in this case the input, they will seek clarification of the discrepancy from the identity standard in the comparator. If they don't like others' negative views, they will seek how they can change their views to produce a positive outcome in the output. If there is no perceived stigma, they will seek to continue with what they have been doing. By verifying their identities, the children with hearing impairment using hearing aids will seek to maintain their group boundaries.

6. Review of Related Literature

Introduction

Previous literature has been reviewed concerning perceptions of learners (with and without hearing impairment) towards hearing aid use, perceptions of parents towards the use of hearing aid-use by their children, perceptions of teachers towards the hearing aid use by the learners and the influence of hearing aid-use on self-esteem among learners with hearing impairment.

Learners' Perception of Hearing Aid-Use

Most psychosocial factors affect the compliance with assistive technology including personality, response to disability and social and physical environment in which technology is used (Scherer, 2002). Individual factors such as age, gender and degree of hearing loss have been cited as affecting hearing aid -use.

Gustafson, Davis, Hornsby, and Bess (2015) discovered that roughly 24% of children in the classroom did not comply with hearing aid use on the days they were monitored in a pilot study on factors impacting hearing aid use in the classroom in the United States. Children from classes 5-7 as well as those with milder hearing impairments were found to be at risk for reduced hearing aid use in the classroom. A study by Walker, Spratford, Moeller, Oleson, Roush and Jacobs (2013), on hearing aid use by data logging is consistent with this research showing a decline in the number of hours in each day of hearing aid use. This is contrary to audiologists' recommendation that hearing aid used in children with hearing loss should be utilised as approved in all their waking hours.

Research on hearing aid use in developing countries is scarce as Olusanya (2008) reported that when hearing aids are availed in developing countries, the self-reported outcomes of rehabilitation would match up to the people with hearing loss in developed countries. Preisler, Tvingstedt and Ahlstrom (2005), affirmed that children who have received hearing aids or cochlear implants in their early years are likely to incorporate them into their lives. In Kenya, most deaf children join pre-primary school when they are 5 years old for 2 years. A small fraction of these children are identified late and therefore they delay going to school (Adoyo, 2002). Once the hearing aids have been fitted on these children followed by counseling on management and use of hearing aids, the learners are likely to perceive the benefits like

increased environmental sound awareness followed by increased vocalization. This will consequently result in positive perceptions toward hearing aid use.

The hearing aid effect refers to the social stigma attached to wearing hearing aids. In higher classes, there is less dependence by children on hearing aid use in interaction with both family members and the teachers. Most adolescents seek to identify themselves with their peers. Erikson (1963), asserts that social identity is validated through social interactions. If an adolescent perceives he/she is not attractive or looks different from her peers, the use of hearing aid use will be negated. Alternatively, an adolescent with high self-esteem, will use their amplification and provide their peers with feedback on supportive strategies for conversations and discussions (Kent & Smith, 2006). The current study thus sought to investigate the perceptions of learners on hearing aid use and its influence on the self-esteem of learners with hearing impairment.

Hearing Aids Use And Self-Esteem

Self-esteem is the total sense of worth, self-acceptance, self-feelings and self-evaluation (Rosenberg, 1965). Erikson's (1963), psychosocial theory of childhood development highlights how children progress through definite stages of life and whether the stages are negotiated successfully or not about self-esteem. For children, early interactions with the caregiver are very important as the child learns the language and the social cues from the caregiver. Children who have hearing impairments, on the other hand, encounter difficulties in social and language development Moores (2000), asserts that around 96% of children with hearing impairments are born to "normal" parents. Hearing aid intervention as a means of treating hearing loss is cost-effective and can bring benefits to these children. Hearing loss that is not treated is associated with some health challenges that are either physical, cognitive deterioration, anxiety, and sadness, as well as an increased risk of trips and falls (WHO, 2018).

Psychosocial development has been shown to influence self-esteem in children with hearing impairment. Robins, Trzesniewski, Trazy, Goosling and Potter (2002), assert that self-esteem is quite high in the early years of life, declines in adolescence mostly for girls, continues to increase moderately in adulthood and reduces sharply in old age. Self-esteem decline in late childhood and adolescence has been cited to be due to perceptions from teachers, parents and peers on curriculum, and extra-curriculum activities based on social comparison to other peers (Harter, 1993). Lane (1992) purports that persons with hearing impairment have been hypothesised as having feelings of low self-esteem as compared to their typical peers because they are in a less valuable group. This study sets to investigate the perception of the hearing aid–use and its influence on the self-esteem of children with hearing impairment.

Harter (1999), states that perceived ability in important areas and experience of social support are significant aspects in the development and safeguarding of self-esteem in children and adolescents. Children who have hearing impairments and do well in both curriculum and extra-curriculum activities have high self-esteem in these domains. The converse is true. Social support on the other hand will stem from interactions with parents, peers, significant

others and the teachers. If the feedback is positive the self-esteem becomes high and low for negative feedback. Theunissen, Rieffe, Netten, Briare, Soede, Kouwenberg, and Frijns (2014) conducted a multicenter study on the impact of communication, education and audiological characteristics revealed that children with hearing impairments experience lower levels of self-esteem from peers and parents compared to the normal hearing group. The levels of global self-esteem regarding physical appearance in hearing-impaired children were found to be equivalent to those of normal-hearing children in the control group.

Jambor and Elliott (2005), state that many factors can reinforce and maintain the self-confidence of the hearing impaired individuals. These include; the type of domestic/familial communication, type of school from pre-school to high school, age at which hearing loss starts, use of hearing aids, the severity of hearing loss and group description. If the family is accepting the hearing loss and helps the child with a hearing aid to fit in, the child is likely to integrate hearing aid use as part of daily life to fit in with the hearing peers. On the other hand, if the child does not have parental support in hearing aid use, does not benefit from hearing aids and uses sign language at home the self-esteem may not stem from hearing aid use but from good communications at home. The type of school either integrated or special school does affect the self-esteem of children with hearing impairment.

Geers (1990), asserts that separate special education all through the early grades is beneficial for the social and academic achievement of children with hearing loss during their secondary and post-secondary years. Deaf pre-schoolers gain much self-esteem by being with other children with hearing impairments. Besides, children in integrated settings are likely to achieve higher self-esteem in the social domain with peers as they learn to coexist with each other. Luckner (1999) notes that integrating hearing students with deaf students is helpful since it gives children a chance to learn how to interact with the hearing world. Deaf children in residential schools don't face negative attitudes from hearing children in their everyday lives. This helps to protect their self-esteem.

The severity of hearing loss determines how much the child benefits from hearing aid use and the resultant use. Walker et al. (2013), used regression analysis to find out predictors of the hearing aid use in children with mild to moderate hearing loss. The study established that longer hearing aid use is associated with older age of children, reduced hearing and the level of mother's education. With younger children and children with milder hearing losses, hearing aids were worn less consistently than in older children. Younger children using hearing aids will require parental and teacher support to use the hearing aid in all their waking hours. Children with milder hearing losses could still be experiencing stigma linked with hearing loss and low self-esteem because of being too close to normal. Gustafson et al. (2015) results on factors influencing hearing aid use in the classroom are consistent with that of Walker, who found out children with milder hearing losses are unlikely to put on hearing aids.

Bat-Chava (1994), affirms the importance of group identification as it influences self-esteem positively by providing a sense of belonging as well as a buffer against negative prejudices and discrimination. Children with hearing impairment in integrated settings have a chance to

acquire bicultural skills where they can choose to have an identity both with the hearing and the deaf world. Bunyasi (2010), did a correlational study in Kenya on the relationship between self-esteem and academic performance of girls with hearing impairments. The study revealed that girls with (HI) possessed high self-esteem yet their academic performance was low due to a lack of specialised technological services. A gap, therefore, exists in the relationship between hearing aid use on the self-esteem of learners with hearing impairment and therefore a need to investigate what happens to their self-esteem once the hearing aids are in use.

Summary and gaps in the related literature

From the reviewed literature, several gaps have been identified in the current study. For instance, many studies investigating hearing aid use and self-esteem have been done in developed countries, with most research being on cochlear implant users. Particularly, these studies focused on children who have had early audio-logical and educational intervention coupled with the collaboration of multidisciplinary teams like social workers, audiologists, speech therapists and the parents. In Kenya, unlike in developed countries, children are delayed in both assessment and treatment because of inadequate facilities, equipment and resources to treat hearing loss.

The learners with hearing aids perspectives have also been delved into in line with Erikson's (1963) psycho-social theory. The perspectives of parents, peers and teachers in hearing aid management and use by children with hearing impairments have not been examined adequately on how they contribute to the outcome of hearing aid – use and consequently to the self-esteem of children with hearing impairments.

Studies in related research on the psychosocial development of children have used the Harter self-esteem scale and teacher report forms while the current research intends to use Rosenberg's self-esteem scale. The reviewed studies carried out in Kenya studied self-esteem, self-concept and locus of control in relation to academic performance. None of the studies has dealt with the relationship between hearing aids use and self-esteem. Findings revealed that children with hearing impairment have both high and low self-esteem in different domains yet none have focused on the perceptions towards hearing aid use. The current study thus sought to find out perceptions on hearing aid use and its influence on self-esteem of children with hearing impairment in integrated settings in Nairobi City County, Kenya.

7. Research Design and Methodology

Research Design

A descriptive survey design was used by this researcher. The concept proved effective in obtaining a wide range of data across a big area in a short amount of time at a reasonable cost. Furthermore, in a descriptive survey, the meaning of the study problem is elicited from respondents, giving those being investigated a voice and empowering them (Mugenda & Mugenda, 2013). The researcher was able to collect data, summarize, present, and analyse the situation regarding perceptions of hearing aid use and its impact on the self-esteem of children with hearing impairments using a descriptive design.

Variables

The independent variable was hearing aid-use while the dependent variable was self-esteem. The intervening variables were counseling on hearing aid use and management, speech therapy and pedagogical strategies like communication support and classroom adaptations.

Location of the Study

The study was conducted in Nairobi City County, which has nine sub-counties.

There are 12 public primary schools in the county with specific units for children with hearing impairment that are integrated in regular classrooms. As a capital city, it benefits from hearing aid donations from most of the city's NGOs, such as the Starkey Ear Foundation, which donates hearing aids to these schools. Being a cosmopolitan city, learners with hearing impairment come from diverse social economic backgrounds and have different experiences with hearing aid use.

Target Population

A population is a group of people, events, or items that share similar features (Mugenda & Mugenda, 2013). The study's target population included 112 children with hearing impairments from eight public primary schools in Nairobi City County with integrated hearing impairment units. The study consisted of learners with hearing impairment in eight public primary schools with an approximate age of 11-18 years. This is because they could understand the questions with little assistance from special education teachers.

Sampling Technique

According to Trochim (2005), sampling is the process of picking a sample from a population. The study employed census sampling for learners with hearing impairments. The 8 schools were purposively sampled since all have children with hearing impairments using hearing aids.

Sample Size

Table 3.1. Sample size

Respon dents	Babado go	Marti n Luthe r	Daniel Comb oni	Joseph k kang'et he	Thaw abu	Njathai ni	Dagore tti	Aghak an	Tota l
Children with H. I	12	12	1	2	2	8	4	10	51

A sample is a random selection from a bigger population. According to Mugenda & Mugenda (2013), when the study population is less than 10,000 people, a sample size of between 10%

and 30% is adequate. The sample size for this study was calculated using 10% of the target population. The study sample size comprised 51 learners with H.I.

8. Research Instruments

Questionnaires and an interview guide were used in the study.

Questionnaires

Orodho (2004) emphasizes the importance of questionnaires in gathering large amounts of data in a short amount of time. In this study, questionnaires comprised both structured close-ended and unstructured open-ended items. It also included a 5 and a 4-question Linkert scale. The questionnaires sought to find out: Demographic information of the respondents, learners' perceptions towards hearing aid use and the effect of hearing aid use on self-esteem.

The two learners with hearing impairments questionnaires were adopted from the Hearing Attitudes Rehabilitation Questionnaire (HARQ), for middle-aged persons to elderly persons by sampling 8 questions related to hearing aid and stigma. The second questionnaire comprised of Rosenberg Self-Esteem Scale. Rosenberg scale comprises 10 statements related to overall feelings of self-acceptance. The scale has been used in the United States of America and also with the regular learners. To ensure it is culturally and linguistically appropriate, it was adjusted to suit the level of learners with the guidance from the supervisors since it's from a different cultural backgrounds (Appendix II).

Piloting

Kizlik (2012), states that piloting plays an important role in identifying misunderstandings, ambiguities and inadequate items. Racecourse Primary School in Nairobi City County's Starehe sub-county hosted the trial. The actual study did not include the pilot school. The school was chosen because it provided a similar setting and demographic to the one used in the study. The respondents were given the questionnaires, and the results were used in the reliability test. The researcher piloted a total of 5 learners with hearing impairments.

Validity of the Instruments

According to Cherry (2010), validity refers to how well a test measures what it promises to measure. In other words, the focus on validity is on the scores produced from the instruments, as well as their interpretation and meaning. The content or face validity of the items on the questionnaires and interview guide was determined using the supervisors' judgment in the study. By connecting the questions with the study objective, the instrument's content validity was attained. This was determined by first comparing answers to one question measuring the same concept among respondents in the pre-testing school.

Reliability of the Instruments

According to Fraenkel and Wallen (2000), reliability is the degree to which research instruments generate constant and dependable results. According to Orodho (2004), measurement reliability refers to the degree to which a given measuring process produces consistent results over some trials. The questionnaires were tested and retested to ensure that

they were reliable. After two weeks, the approach was reproduced, and the results were weighed using Cronbach's alpha to ensure internal consistency. It was deemed acceptable to have a reliability coefficient of 0.7 or higher. The internal consistency approach was used to determine the true score variation in the attributes measured by the instruments after the data collection instruments had been piloted. This was determined by the results of a test given to a random sample of people. As a result, all of the data gathering tools employed in this study were accurate and hence appropriate for the research. This instrument's Cronbach's Alpha reliability coefficient was 0.7, which was deemed sufficient to validate and represent the instruments' internal consistency. To improve the interview guide's trustworthiness and credibility, the researcher asked probing questions. In addition, a greater period was spent in the field, with a focus on taking field notes.

Data Collection Techniques

The researcher first sought the consent of participants by requesting them to sign consent forms (See Appendix I) and then personally carried out data collection by administering interviews and questionnaires. Questionnaires were administered in natural classrooms with assistance from special education teachers. The learners with hearing impairments were assisted by the special education teachers as some words required clarification using sign language and interpretation. This ensured that learners fully understood the questions. The data was collected during three months. Individual scores on the Rosenberg self-esteem measure were used to generate data for the study.

Data Analysis

The statistical package for social sciences computer software (SPSS) version 22 was used to analyse the data. In addition, descriptive and inferential statistics were employed in the analysis of quantitative data and the presentation of conclusions in the form of tables and figures. Thematic summaries of qualitative data from questionnaires and interviews were used to answer the study's objective. The perceptions of learners with HI were analysed using descriptive statistical analysis. Established measures of central tendency (frequency, percentages and means) were presented in tabular form. Hearing aid use's effect on self-esteem among learners with hearing impairments was established using Pearson moment correlation analysis.

Logistical considerations

At the county level, permission was also sought from the County Director of Education and the County Commissioner. The researcher made visits to the schools and sought an appointment date with the administration. The request was made orally to the respondents through their special education teachers about the nature and purpose of the research.

Ethical considerations

To address the issue of anonymity, respondents were not obliged to write their names. Furthermore, the researcher informed the respondents that their responses would be kept private and utilised only for the study. The researcher developed a rapport with the

participants. Participants were assured that all interview and questionnaire forms would be shredded and burned after the study to avoid public exposure. Respondents would freely participate, and they would be advised of their right to withdraw at any moment. Following that, when the studies are over, the results will be shared with them.

9. Presentation, Interpretation and Discussion of Findings

Response rate

The questionnaires distributed were targeting learners with hearing impairments using hearing aids in integrated units in Nairobi city county Kenya. The questionnaires that were properly filled and collected represented 59.46% of the total respondents which was enough to make an analysis and the discussions.

Table 4.1. Response rate

Respondents	Frequency	Percentage (%)
Learners with H.I	44	59.46%

Demographic Information of the Respondents

The learners' gender, ages and the time learners started using hearing aids were established. Learners with HI, both male (54.5%) and female (45.5%) participated in this study. The average age of the learners with HI was 13.6 years.

Table 4.2. Demographic information of the respondents

	Category	Learners with HI
Gender	Male	24 (54.5%)
	Female	20 (45.5%)
Average age (yrs)	-	13.6 ± 0.27

Table 4.2 above shows that there is a very small difference between the number of female and male learners with hearing impairments who participated in the study. It was hoped that the two genders had differing perceptions towards hearing aid use as most of them are adolescents transiting between childhood and adulthood.

Age at the time the learners started using hearing aids

The researcher sought to find out the age at which the learners started using hearing aids. The results are presented in figure 4.1

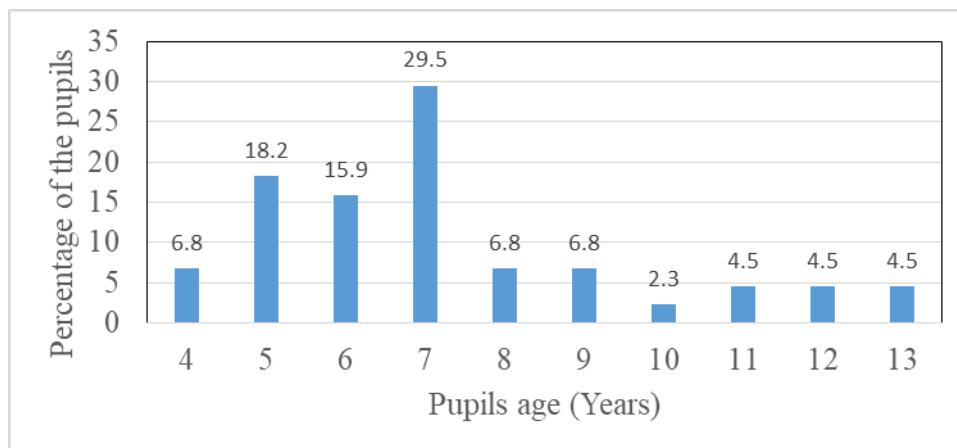


Figure 4.1. Age at which learners started using hearing aids

Most of the learners started using hearing aid at the age of 7 years (29.5%). However, 2 of the learners (4.5%) started to use it relatively late, at the age of 13 years. Some learners started to use it as early as the age of 4 years. The age that which learners started using hearing aid affects the perception of hearing aid use. If the pupil is fitted early s/he can have successful speech and language skills and hence positive perceptions towards hearing aid use. Olusanya, Neumann, and Sanders (2014) affirm that failure to detect early and effectively manage hearing impairment that is congenital or that begins at birth, within the first year of life, has been linked to significant irreversible linguistic, cognitive and literacy skills.

Perceptions of Learners With Hearing Impairments on the Use of Hearing Aids

The study sought to find out learners’ perceptions of the use of hearing aids which could influence their level of self-esteem. Close-ended items were used to examine the respondents' perceptions of hearing aid use. Table 4.2 shows the frequencies and percentage of responses on learners' perception of hearing aid-use

Table 4.3. Learners with HI perceptions towards hearing aids

	Questions	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	I think if you wear a hearing aid people tend to ignore you.	10 (22.7%)	13 (29.5%)	7 (15.9%)	3 (6.8%)	11 (25.0%)
2	I would stand out in a crowd while with a hearing aid.	7 (15.9%)	2 (4.5%)	3 (6.8%)	15 (34.1%)	17 (38.6%)
3	People don't know how to react to you when you have a hearing aid.	4 (9.1%)	5 (11.4%)	5 (11.4%)	15 (34.1%)	15 (34.1%)
4	It would make me feel old to wear a hearing aid.	13 (29.5%)	18 (40.9%)	5 (11.4%)	3 (6.8%)	5 (11.4%)
5	It would embarrass me to wear a hearing aid	6 (13.6%)	8 (18.2%)	9 (20.5%)	4 (9.1%)	17 (38.6%)
6	I think people react differently when you wear a hearing aid.	2 (4.5%)	15 (34.1%)	3 (6.8%)	17 (38.6%)	7 (15.9%)
7	From what I know hearing aids don't help a great deal.	13 (29.5%)	10 (22.7)	5 (11.4%)	6 (13.6%)	10 (22.7%)
8	I think the behind the ear hearing aid are quite small and inconspicuous	3 (6.8%)	1 (2.3%)	7 (15.9%)	10 (22.7%)	23 (52.3%)

In examining learners' perception of hearing aid use, eight attributes of perception were tested as indicated in table 4.2. The results show that slightly more than a quarter, 13 (29.5%) of the learners agreed that on wearing a hearing aid people tend to ignore them, 10 (22.7%) also strongly agreed with the same. Those who disagreed were 3 (6.8%) followed by 25% who strongly disagreed. Cumulatively more learners had negative feelings towards hearing aid use.

On the second statement on standing out in a crowd when wearing a hearing aid, 17(38.6%) strongly disagree followed by 15(34.1%) who disagreed. This indicates some more positive feelings towards hearing aid use as opposed to 7 (15.9%) who strongly agreed and 2 (4.5%) who agreed.

In the third statement on whether people don't know how to react to them when they have a hearing aid, 15(34.1%) strongly disagreed/ disagreed respectively as compared to 5 (11.4%) who agreed and 4(9.1%) who strongly agreed. This is consistent with Peter Burke (2007) Identity Control Theory which focuses on the identity of people in response to behavior in the social structure. According to this theory, children with hearing impairments using hearing aids will embrace hearing aid use from the signal they receive from their significant others. If positive, they embrace their use but will negate the use if the reactions are negative. The learners had more positive feelings from the people hence hearing aid –use was positive.

In the fourth response on hearing aid making one feel old, 18 (40.9%) of the respondents agreed that it would make them feel old to wear a hearing aid, while 13 (29.5%) strongly agreed with the same. This was opposed to a smaller number of 5 (11.4%) who strongly disagreed and 3(6.8%) who disagreed on hearing aid making them feel old. The learners' perceptions were negative.

On the 5th response on being embarrassed to put on the hearing aid or not, 17(38.6%) strongly disagreed and 4 (9.1%) disagreed respectively. 6 (13.6%) strongly agreed and 8 (18.2%) agreed. This showed a positive perception of hearing aid use.

In the 6th response on people reacting differently when they wear a hearing aid, 17 (38.6%) disagreed while 7 (15.9%) strongly disagreed. This again showed a better perception towards hearing aid use as opposed to 15 (34.1%) who agreed and 2 (4.5%) who strongly agreed.

The 7th response was on hearing aids not helping a great deal, a significant number 13(29.5 %) strongly agreed followed by 10(22.7%) who agreed. This showed a negative perception towards hearing aid use as compared to 10(22.7%) who strongly disagreed and 6 (13.6) who disagreed respectively.

In the 8th response on the size of behind the ear hearing aid being small and inconspicuous, 23(52.3%) strongly disagreed followed by 10(22.7%) who disagreed. This was opposed to 3(6.8%) who strongly agreed and 1(2.3%) who agreed. The perceptions were negative.

These findings concur with those of Kent and Smith's (2006) study among children in New Zealand schools which established that most of the children preferred smaller but less visible canal aids because their peers did not notice them. Since the average age of the children

sampled was 13 years, they are in the adolescent stage and therefore could have been facing the physical challenges associated with the developmental transition from childhood to adulthood hence causing them to have negative feelings towards hearing aid use.

On average the positive perceptions were 50.74% against the negative perceptions of 49.26%. This shows that a good number of learners (50.74%) with hearing impairments have positive perceptions of hearing aid use. However, it is also clear that a large number (49.26%) still have a negative perception of hearing aid use. The findings of this study concur with Scherer (2002), who highlights various factors that affect compliance with assistive technology including personality, response to disability, social and physical environment in which the technology is used. During data collecting, it was discovered that the hearing aids in two of the schools where hearing aids were 100% donated were still in the cupboard waiting to be serviced. They had not been worn for nearly two months since the donor had withdrawn and the majority of the learners were not able to meet the costs that go with hearing aid use.

The researcher noticed very few learners who had put on hearing aids. Several learners had left them at home. Clients who can perceive the benefits of acoustical amplification over obstacles like vanity, bad assessments, or excessive expectations for hearing aids appear to adapt to wearing hearing aids more successfully than those who can't see the benefits, according to the report (Smith 2014). The majority of those who thought hearing aids don't assist much (52%) may not have seen any tangible advantages by the time the data was collected.

The Influence of Hearing Aid Use on Self-Esteem Among Learners With Hearing Impairments In Nairobi City County

Using Rosenberg self-esteem scale, the relationship between hearing aid use and self-esteem was established. On a scale of 1 -4 (1- Strongly disagree, 2- disagree, 3- Agree, 4- Strongly agree), most learners felt that they have some good qualities (mean response 3.55), are satisfied with themselves (mean 3.50), can do things as well as most other people (mean 3.45) and had a positive attitude towards themselves (mean 3.39). The learners further indicated that they do not feel useless by using hearing aids (mean of 1.72).

Table 4.5. Learners' self-esteem

Items	Statement	4	3	2	1	Mean score
1	I feel I am a person of worth at least on equal planes with others.	22 (50.0%)	12 (27.3%)	5 (11.4%)	5 (11.4%)	3.16
2	I feel I have some good qualities.	26 (59.1%)	14 (31.8%)	1 (2.3%)	1 (2.3%)	3.55
3	All in all, I am inclined to feel I am a failure.	5 (11.4%)	6 (13.6%)	17 (38.6%)	15 (34.1%)	2.02
4	I can do things as well as most other people.	20 (45.5%)	24 (54.5%)	-	-	3.45

5	I feel I don't have much to be proud of.	7 (15.9%)	8 (18.2%)	19 (43.2%)	10 (22.7%)	2.27
6	I take a positive attitude towards myself.	19 (43.2%)	23(52.3%)	2 (4.5%)	-	3.39
7	On the whole, I am satisfied with myself.	23 (52.3%)	20 (45.5%)	1 (2.3%)	-	3.50
8	I wish I could have more respect for myself.	12 (27.3%)	19 (43.2%)	8 (18.2%)	4 (9.1%)	2.91
9	I certainly feel useless at times.	-	5 (11.4%)	21 (47.7%)	17 (39.5%)	1.72
10	At times I feel I am not good at all.	9 (20.5%)	10 (22.7%)	12 (27.3%)	13 (29.5%)	2.34

1- Strongly disagree, 2- disagree 3- Agree, 4- Strongly agree

According to the first statement, "I feel I am a person of worth at equal planes with others" the learners had a mean score of 3.16. This implied they had self-confidence in themselves and didn't regard themselves as lesser than others. In the second statement, "I feel I have some good qualities", learners had a mean score of 3.55. This is consistent with the first statement on self-acceptance suggesting that learners see themselves favorably in a bid to consistently maintain this self-image resulting in high self-esteem.

The third statement which stated all in all "I am inclined to be a failure is negating the sense of self-worth", learners had a mean score of 2.02 showing medium self-esteem. The wavering sense of worth could be an example of an external attribute that the hearing impaired learners could be receiving from significant and generalised

others on feedback towards hearing aids use. Johnson et al (2005), on hearing aid effect shows that despite the improved design and size of hearing aids, there is still stigma amongst some of the students who wear them making them feel different. Wolters et al (2012), further supports the findings by affirming that peer relationship at school is important as it impacts the level of self-esteem.

The fourth statement, "I can do things as most other people", recorded a mean of 3.45. The high self-esteem recorded is in favour of integrating children with hearing impairment with their hearing peers as they learn a lot in social domains like sports and clubs. Luckner (1999) supports that this helps deaf children to interact with the hearing world. The fifth statement "I don't feel much to be proud of", had a mean of 2.2 which implied medium self-esteem. This statement also negates self-worth and it is consistent with the third statement on self-feelings reflecting low self-concept either due to extrinsic factors from the environment hence affecting their level of motivation.

The sixth statement on having a positive attitude towards themselves had a mean score of

3.39. This shows that the majority of learners have self-acceptance which is a prerequisite for self-improvement hence depicting high self-esteem. This is despite the challenges they could be facing of looking different from their peers as pointed out earlier that the self-esteem of children with hearing impairments depends on perceptions and feedback on others and important people in their lives. The seventh statement, on whole "I am satisfied with myself" also had a mean of 3.50 depicting high self-esteem. This shows a sense of self-responsibility by accepting what they cannot change in this case, being hearing impaired. According to Burke (2016) identity control theory, they can counter the negative feelings by changing their views or their identity to produce a positive outcome therefore not falling a victim to the circumstances. The statements eight, "I wish I could have more respect for myself", 2.91, nine, "I certainly feel useless at times" 1.72 and ten, "at times I feel I am not good at all" mean 2.43 were all negative statements. In summary, all questions with a positive slant (1, 2,4,6 and 7, recorded higher self-esteem compared to questions with a negative slant (3,5,8,9, and 10.

Global self-esteem was found to be medium as shown in Figure 4.4 below; which refutes the claim by Lane (1992) that people with hearing impairment have low self-esteem.

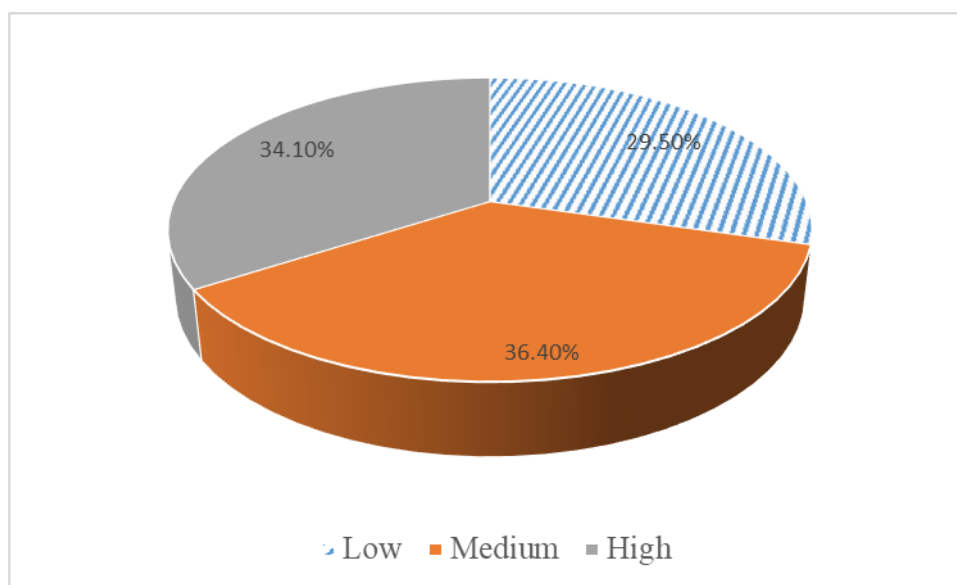


Figure 4.4. Learners' self-esteem levels

Based on the Rosenberg scale, individual self-esteem was classified as low (10 – 25), medium (26 – 29) High (30 – 40) on a scale of 1 – 4 (strongly disagree, disagree, agree and strongly agree). In the self-esteem scale, the result of the scores of the positive items (number 1,2, 4, 6 and 7) and the negative statements (3, 5, 8, 9 and 10) were summed up. Therefore, the lowest score of an individual was 10 and the highest score was 40. The learners' scores revealed that; 13 (29.5%) had low self-esteem, 16 (36.4%) had medium self-esteem and 15 (34.1%) had high self-esteem, figure 4.5. A Summary of the sampled learners' population was 28 score (Medium self-esteem).

Relationship between self-esteem and learners' use of hearing aid

Using Pearson's correlation analysis, the relationship between learners' self-esteem levels with the use of hearing aid was established.

Table 4.6. Correlation table showing the relationship between self-esteem and learners' hearing aid use

Use of hearing aid		Level of self-esteem
I think if you wear a hearing aid people tend to ignore you	r – value	-0.198
	P-value	0.199
I would stand out in a crowd while with a hearing aid	r – value	0.365*
	P-value	0.016
People do not know how to react to you when you have a hearing aid	r – value	0.188
	P-value	0.223
It would make me feel old to wear a hearing aid	r – value	-0.054
	P-value	0.727
It would embarrass me to wear a hearing aid	r – value	0.158
	P-value	0.307
I think people react differently when you wear a hearing aid	r – value	0.225
	P-value	0.143
From what I know hearing aids don't help a great deal	r – value	-0.137
	P-value	0.379
I think the behind the ear hearing aid are quite small and inconspicuous	r – value	-0.217
	P-value	0.156
	N	44

Self-esteem level was significantly high when the learners were of the perception that they would stand out in a crowd while with a hearing aid ($r = 0.356$, $P = 0.016$). "People do not know how to react to you when you have a hearing aid ($r = 0.188$, $P = 0.223$)", "feel embarrassed to wear a hearing aid ($r = 0.158$, $P = 0.307$)" and "people react differently when you wear a hearing aid ($r = 0.225$, $P = 0.143$)", hence a positive correlation.

Learners who felt that "if you wear a hearing aid people tend to ignore you ($r = -0.198$, $P = 0.199$)", "the behind the ear hearing aid are quite small and inconspicuous ($r = -0.217$, $P = 0.156$)", "hearing aids don't help a great deal ($r = -0.137$, $P = 0.379$)" and "to wear hearing aid would make them feel old ($r = -0.054$, $P = 0.727$)" had low self-esteem, hence the negative correlation values. It was observed that children with hearing impairments using hearing aids are highly selective of the domains in which they state their self-worth concluding that their self-esteem depends on what attributes they value important to them.

Using Pearson's correlation analysis, the relationship between learners' self-esteem levels with the use of hearing aid was established. A combined composite variable of learners with HI perception was calculated as shown in the table below.

Table 4.7. A combined composite variable of learners with HI perception

Pearson Correlation (r)	0.120
Sig. (2-tailed) (P)	0.437
N	44

The overall result of the study indicated a weak positive influence of perception of hearing aid use on the self-esteem of learners with hearing impairment ($r = 0.120$, $P = 0.437$). The study established that children with hearing impairment had variability in the levels of perceptions of social domains they appraised themselves. This is because of the unique characteristics of each child with hearing impairment using hearing aids. This is in agreement with the study by Theunissen, Rieffe, Netten, Briaire, Soede, Kouwenberg & Frijns (2014) who found that due to the heterogeneity of the population with hearing impairment the level of self-esteem differs.

The current study found that children with hearing impairment using hearing aids who had been counseled on hearing aid use and management and benefited from interventions from audiologists/speech therapists were more confident than their peers with hearing aids with no audiological/speech therapy interventions. This supports a study by Blood, Boyle, and Nalesnik (2010) and Boyle (2013), that children with hearing impairment who have had successful speech, perception skills and language intervention are reported to have similar ratings of self-esteem to their normal-hearing peers than those who have had no intervention.

10. Conclusions and Recommendations

Summary of the Research Findings

The purpose of the study was to find out the perceptions of hearing aid use and its influence on the self-esteem of learners with hearing impairments. Seventy-five (75) questionnaires (91.46%) were properly filled and collected.

The study findings revealed that the perceptions of learners with hearing impairment towards hearing aid use were slightly positive. It was observed that for learners with HI who had accrued some benefit towards hearing aid use like the increased perception of environmental noise and speech and sound perceptions, they embraced hearing aid use. This had to be accompanied by positive perceptions from significant others like peers, parents and teachers. This was in addition to regular servicing of hearing aids, recharging and buying of the batteries by the parents/guardians. Some learners, however, with hearing impairments were aversive to hearing aid use.

The learners without hearing impairment had positive perceptions of learners with hearing impairment using hearing aids as they shared activities, guided them and handed them back their lost hearing aids.

Lastly, using Pearson's Correlation Analysis, the relationship between learners' self-esteem

levels with the use of hearing aid was established. A combined composite variable of learners with HI perception was calculated. The result of the study indicated a weak positive influence on the perception of hearing aid use on the self-esteem of learners with hearing impairments ($r = 0.120, P = 0437$).

The study concluded that learners with hearing impairment perception towards hearing aid use were generally positive but quite a number of learners had challenges in management and use of hearing aid, cosmetic issues in adolescence, how others see them, and learners' belief that hearing aids are ineffective.

The study found there were generally positive perceptions towards the use of hearing aids by learners with HI. The children with hearing impairments using hearing aids who had been counseled on hearing aids use and management and benefited from interventions from audiologists/speech therapists were more confident than their peers with hearing aids with no audio-logical /speech therapy interventions. Some learners with HI were averse to using hearing aids and the benefits they would receive. The study's overall findings revealed a minor positive impact on learners with hearing impairments' self-esteem when they used hearing aids.

Recommendations

By investigating the perceptions of hearing aid use and its influence on self-esteem of children with hearing impairment in integrated settings in Nairobi City County, Kenya, there is a need to integrate the learners, parents, teachers and other relevant stakeholders in the management and use of hearing aids in children with hearing impairments and consequently the resultant self-esteem.

The study thus recommends the following on perceptions of hearing aid use and its influence on the self-esteem of learners with hearing impairment:

Recommendations to the Government through the ministry of education

- (i) Since a number of learners with hearing impairment were averse towards hearing aid use, the government should ensure there is follow up on hearing aid use by learners through collaboration with multidisciplinary team i.e. parents, teachers, audiologists and speech therapists so that they can accrue benefits associated with hearing aid use.
- (ii) The ministry of education should ensure there is guidance and counseling on hearing aid use by staffs as well as learners with and without hearing impairment. This will curb the stigma associated with hearing aid use.
- (iii) The government should support parents on acquiring and management of hearing aids by subsidizing the cost of hearing aids and batteries so that the care and management of hearing aids is not left to the school administrators.
- (iv) The government should ensure that there is funding in schools to support hearing aid use. This will encourage teachers to support hearing aid use in their classroom.
- (v) The government should ensure there is regular in-service of teachers in management and

use of hearing aids. This will ensure there is compliance of hearing aid use by learners in the school.

Recommendations to NGO's

The NGO's should follow up with children with hearing impairment using hearing aids by ensuring there is follow up on hearing aid use.

Recommendations to Parents

Parents should be patient with their children with hearing impairment especially when handling the hearing aids device. They should teach their children how to handle and being careful when handling the device.

Recommendations to Teachers

(i) Learners with hearing impairment using hearing aids self- esteem was influenced by how they perceive themselves, and how they feel others perceive them. Therefore, teachers should encourage other learners and parents to have positive attitude towards the learners with hearing impairment using hearing aids.

(ii) The teachers should take the responsibility to educated parents on the importance of early audiological intervention so that the learners are not delayed in hearing aid fitting.

i. Since some learners with hearing impairments were aversive to hearing aid use, should ensure there is a follow-up on hearing aid use by learners through collaboration with multidisciplinary teams i.e. parents, teachers, audiologists and speech therapists so that they can accrue benefits associated with hearing aid use.

ii. The ministry of education should ensure there is guidance and counseling on hearing aid use by staff, and learners with or without hearing impairments. This will curb the stigma associated with hearing aid use.

iii. The government should ensure that there is funding in schools to support hearing aid use. This will encourage teachers to support hearing aid use in their classroom.

Suggestions for Further Studies

(i) Further studies should focus on other factors affecting the self-esteem of learners with hearing impairment apart from the use of hearing aids.

(ii) Factors affecting the use of hearing aids among learners with hearing impairment also ought to be investigated.

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