

# Efficacy of Cognitive Behavior Therapy on Self-Concept of Hearing-Impaired Students in Kaduna State Special Education School

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**Abstract:-** The study sought to determine the efficacy of Cognitive Behavioural Therapy (CBT) on self-concept of the Hearing Impaired Students (HIS) of Kaduna State Special education school. The study, therefore, sought to find out if there was any significant increase in the Hearing Impaired Students' level of general self-concept after the application of Cognitive Behavioural Therapy. The sample was drawn from primary one to six with a total population of 83. After the pilot test which involved 20 of them, 14 males and six females, 63 were left out. The 20 HIS that were involved in the pilot test were excluded in the real study. However, 60 of the students consisting of 35 males and 25 females were involved in the study. Out of the 60, 30 of them formed the control group and the other 30, the experimental group. The research instrument used was the abridged version of Questionnaire developed by Marsh, Parker & Smith (1983). The experimental group was taken through a 12-week treatment programme which involved basically the application of Cognitive-Behavioural Therapy (CBT) as a remediation for low or negative self-concept. Three hypotheses formulated that guide the study and tested at the 0.05 level of significance. Data collected was analyzed by using two-tailed t-test statistical analysis. Results of the study revealed that there is a significant increase in the Hearing-Impaired Students' (HIS) level of general self-concept after the application of CBT. There is also significant increase in the male and female HIS' level of general self-concept after the application of CBT. It was concluded that the applicability of CBT as an intervention programme in this study was efficacious in enhancing the self-concept of the Hearing-Impaired Students. It was recommended that government should deploy Counsellors to Special Education Schools in order to assist persons with disabilities adjust to their special needs and demands of life. It was also recommended that there is the need for the integration of self-concept enhancement programmes in the school experience of disabled persons.

**Keywords:-** Cognitive Behavioural Therapy; Self-concept; Hearing Impairment.

## I. INTRODUCTION

It has been observed that being informed that ones child is disabled is horribly traumatic. Parents usually manifest a wide range of feelings of confusion, helplessness and breaking down. It is at home that the problems of disabled persons usually begin. They could be hated, isolated or in some cases out rightly neglected and rejected. In other words, if parents accept them reluctantly they may be denied of necessary love and attention a normal child enjoys. Parents at this stage begin to deny their disabled child necessary love, affection or offer over – protection. Consequently, the disabled child's psyche is greatly affected, contributing to low self-concept, low self-determination and low self-esteem. It becomes imperative to intervene therapeutically in order to make them believe in themselves, that they have hope and can attain toward Abraham Maslow's self-actualization in life.

### Objectives of the Study

The study is aimed at finding out the efficacy of Cognitive-Behavior Therapy (CBT), in enhancing the general self-concept of hearing-impaired students.

The specific objectives of this study were as follows:

1. To find out of there will be an increase in the hearing-Impaired Students (HIS) level of general self-concept after the application of CBT.
2. To find out if there is an increase in the male HIS level of general self-concept after the application of CBT.
3. To determine if there will be an increase in the female HIS level of general self concept after the application of CBT

### Hypotheses

The following null hypotheses guided the study and was tested at the 0.05 level of significance.

- i. Ho<sub>1</sub>: There is no significant increase in the hearing impaired students' (HIS) level of general self-concept after the application of CBT.
- ii. Ho<sub>2</sub>: There is no significant increase in the male HIS' level of general self-concept after the application of CBT.
- iii. Ho<sub>3</sub>: There is no significant increase in the female HIS' level of general self-concept after the application of CBT.

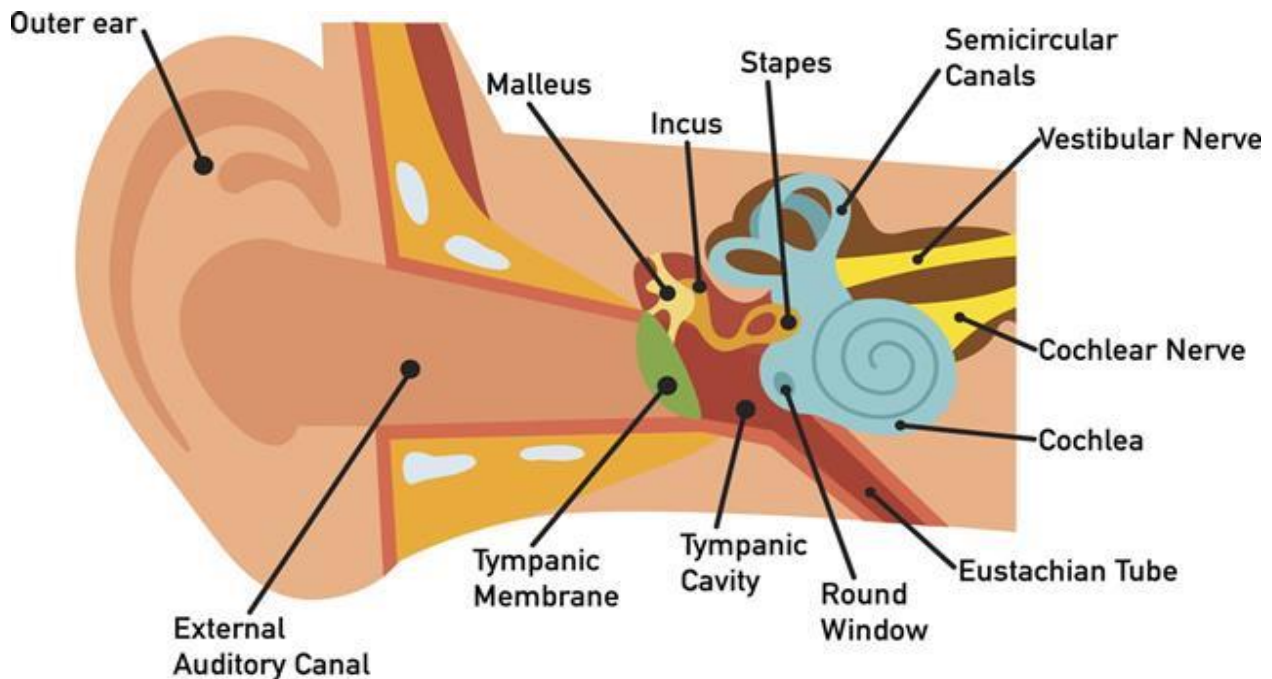
## II. LITERATURE REVIEW

### The Structure of Human Ear

The human body according to Bodytomy and Buzzle.com (2021) is like a big machine, and various processes take place inside it. With the help of the various organs and tissues, it carries out some of the most marvelous tasks, that are no less than a miracle! One such organ is the

ear that helps us in the process of hearing and balancing. The sound waves entering the ear get converted into electric impulses for the brain to understand and interpret.

Let us take a look at the human ear structure with the help of a diagram, and understand its functions a little more closely.



Source: Bodytomy & Buzzle.com.inc (2021)

- **Helix:** It is the prominent outer rim of the external ear.
- **Antihelix:** It is the cartilage curve that is situated parallel to the helix.
- **Crus of the Helix:** It is the landmark of the outer ear, situated right above the pointy protrusion known as the *tragus*.
- **Auditory Ossicles:** The three small bones in the middle ear, called *malleus*, *stapes*, and *incus*, are connected. These bones together are called the auditory ossicles, and their purpose is to let the sound that strikes the eardrum, further into the inner ear.
- **Oval Window:** Oval window is the opening covered by a thin membrane, which connects the middle ear to the inner ear.
- **External Auditory Canal:** External auditory canal or ear canal, is the channel from which the sound enters from the outside ear to the eardrum.
- **Eardrum/Tympanic Membrane:** It is the thin membrane located between the external ear canal and the middle ear.
- **Cochlea:** Cochlea is tiny conical structure situated in the inner ear that resembles a snail shell. It is responsible for converting sound vibrations into nerve signals that are sent to the brain.
- **Eustachian Tube:** It is a tube which connects the middle ear cavity and the pharynx. It plays a crucial role in ensuring that the air pressure on each side of the eardrum is even.

- **Semicircular Canals:** The semicircular canals are located in the inner ear and constitute of three tiny tubes that are filled with fluid. They play a crucial role when it comes to balancing the body.
- **Vestibulocochlear Nerve:** It is nerve that transmits messages regarding sound and balance, from the inner ear to the brain (Bodytomy and Buzzle.com, 2021)

### Common Causes of Hearing Loss

Our ears contain many parts according to Harvard Medical School Center for Hereditary Deafness (2004) all of which need to work properly for us to hear sounds. The type of hearing loss that occurs depends on what part of the ear is not working properly. For example, if there is something not working in the

- ear canal
- eardrum
- middle ear bones or
- middle ear space (e.g. fluid) (Harvard Medical School Center for Hereditary Deafness, 2004)

**Duration Of Hearing Loss:** Depending on the cause, hearing loss may be temporary or permanent. Temporary hearing losses are almost always conductive and are far more common than permanent hearing losses. Permanent hearing losses are usually sensorineural, but may also be conductive (Harvard Medical School Center for Hereditary Deafness, 2004).

**Causes Temporary Hearing Loss:** There are several causes of temporary hearing loss. The most common cause is fluid in the middle ear (i.e. due to ear infections). Other causes may include according to Harvard Medical School Center for Hereditary Deafness (2004):

- Eardrum perforation (when there is a hole in the eardrum from a bad ear infection, or ear trauma)
- Narrowing of the ear canal due to surgery or disease
- Excessive ear wax that plugs the ear canal

**Causes Permanent Hearing Loss:** Permanent hearing losses are less common than temporary hearing losses. There are many causes of permanent hearing losses. These include genetic, infectious, drug-related, physical trauma and structural causes. More so, poking objects too deeply into the ear canal (Q-tips, pencils, food, buttons, pins, etc) can cause hearing loss. It is the most common ear injury in toddlers. Although, there are many reasons why permanent hearing loss may occur, genetics is the most common. It accounts for over half of all cases of hearing loss in infants. Saying that hearing loss is “genetic” means that there is a change in a gene.

- We have the same set of genes in every cell of our body
- Genes tell our cells how to function
- When a change in a gene occurs it is called a “mutation”
- A mutation can stop the gene from working properly (Harvard Medical School Center for Hereditary Deafness, 2004).

While there are some families that have hearing loss in many generations, most people with genetic hearing loss do not have family members with hearing loss. **Syndromic vs. Non-syndromic Hearing Loss:** There are two types of hearing loss caused by genetics. About 30% of people with a genetic type of hearing loss have what is called a syndromic hearing loss. Syndromic hearing loss means that there are other health problems in addition to hearing loss (Harvard Medical School Center for Hereditary Deafness, 2004).

The other 70% of genetic hearing loss is called non syndromic hearing loss. In this case, the person only has hearing loss. After Birth Genetic testing may help determine if the hearing loss is genetic. This information may allow better treatment and management of the hearing loss, and predict the chances that future children will have hearing loss (Harvard Medical School Center for Hereditary Deafness, 2004).

- Ototoxic drugs (e.g. aminoglycoside antibiotics, diuretics, cisplatin) Physical Trauma Infections The ear is a delicate structure and can be easily damaged in a number of ways, such as: New vaccines have prevented some hearing loss caused by infections. However, other infectious causes still exist. Some examples include:
  - Head injuries (skull fractures or concussions)
  - Exposure to loud noise (either a single blast or many exposures to loud noises) During Pregnancy
  - Infections caused by viruses (Cytomegalovirus [CMV], herpes, rubella) Structural Problems of the Ear
  - Syphilis A person can be born with an ear that is not formed normally. This could affect the outer, middle or the inner ear. Examples include:

- Toxoplasmosis (may be associated with consumption of food or water contaminated with animal feces, or of raw or undercooked meat)
- Stenosis (narrowing of the ear canal)
- Absence or malformation of the outer ear, ear canal, ear drum, After Birth ear bones
- Inner ear malformations (e.g. enlarged vestibular aqueduct)
- Infections caused by bacteria (bacterial meningitis, syphilis)
- Infections caused by viruses (measles, mumps) Unknown Causes Sometimes the cause of hearing loss cannot be identified. This may be because there are no available tests to find the cause. For instance, there are no tests for many genetic causes of hearing loss (Harvard Medical School Center, 2004).

Drugs and other chemicals can also cause hearing loss as stated by Harvard Medical School Center for Hereditary Deafness (2004). Some drugs can affect the fetus, while others are harmful after birth. In addition, there are other causes of hearing loss that we do not yet understand. For example, a higher incidence of hearing loss has been seen in newborn babies with many different risk factors such as during pregnancy:

- Lengthy stay in the Neonatal Intensive Care Unit (NICU)
- Very premature birth
- Alcohol
- High levels of bilirubin
- Medications (e.g. Accutane®, Dilantin®, chemotherapy)
- Low oxygen levels.

The relationship between many of these risk factors and hearing loss is unclear. Finding the cause of hearing loss is often not an easy task. Making an accurate diagnosis and finding a way to manage the hearing loss requires a combination of

- a physical exam
- family history
- clinical tests (such as genetic tests, MRI, EKG, CT scans, etc.)
- ongoing hearing tests with an audiologist Sometimes, even with all exams, the cause of hearing loss may remain unknown.

However, it is best if hearing loss is identified early. It is also important that help for the hearing loss begin as early as possible. Help can include communication therapy, parent support and hearing devices such as hearing aids and cochlear implants. As parent you should enrol your child in an early intervention program. This is true even if the cause is still being examined. This gives a child with hearing loss the best chance at language development, social interactions and education. (<http://hearing.harvard.edu/resources.htm>).

### Self-concept and Hearing Impairment

Although the importance of having a positive, well-adjusted self-concept is clear, it may be accepted that anyone may find this difficult, regardless of their state of ability. It may also be accepted that a hearing impairment may, in itself, affect the formation of someone’s personality.

From the knowledge and experiences acquired on the development of hearing-impaired children, a series of general tendencies can be mentioned that affect these children's development (Warren, 1994; Ammerman, Van Hasselt, Hersen, 1986; Frailberg, 1977; Ochaíta, 1993; Leonhardt, 1992, Díaz-Aguado, 1995):

- i. *A difficulty in making generalizations.*
- ii. *The major role that adults play.*
- iii. *The social significance of blindness.*
- iv. *The perspective of development (p.24).*

The development of a child's self-concept, when they have a visual or hearing impairment, follows similar steps to that of a child with sight or hearing, although the hearing or visual defect will influence this process. However, there is no empirical evidence that the lack of vision or hearing has a general effect on hearing or visually-impaired children. Warren (1994) highlights the major roles that body image and language play in the case of these children. According to him, during the phase of developing a verbal sense of identity, language will provide the hearing or blind child with new forms of contact with others and will be the key to the world. The person's image of their body, orientation and mobility, specific aspects of language, the acquisition of a sexual identity, the role of gender, play, and interaction with their peers and an acceptance of the impairment can, among other things, be areas of special difficulty for children who are visually impaired. This is why early action is needed.

Clock-Clampert (1981) underlines the importance of hearing or blind child's self-concept: The most fundamental aspect of the hearing impaired or blind child is his self-concept. The manner in which the child learns to view himself has a tremendous impact on his future ambitions, accomplishments and personal happiness. Clock-Clampert (1981) also emphasizes that, among the background work that has been used towards current studies, and also bearing in mind the descriptive research carried out, which has offered practical information to both parents and professionals.

### III. METHODOLOGY

The study was an experimental research aimed at investigating the efficacy of Cognitive Behavioral Therapy (CBT) on self-concept of Hearing Impaired Students in Kaduna State Special Education School, Kaduna. The design involved the use of pre-test, post-test control group. Two groups of subjects were randomly selected and given a pre-test. One group was taken through a treatment program after

which they were given a post-test to see if there was any significant increase in their general self-concept. The control group was also given the post test, the results of which were compared with those of the experimental group.

The pre-test, post-test experimental design in this study had the advantage of requiring minimal control as the groups of hearing impaired students (HIS) were compared in terms of performances before and after exposure to treatment. Therefore, measurement of dependent variable (self-concept) was made both before and after treatment conditions.

The population of this study was the Hearing Impaired Students (HIS) of Kaduna State Special Education School (KASSES), located at Masaba Road by Katsina Road, Kaduna. The records as at 2021 showed that at KASSES there were 83 Hearing Impaired Students in the primary school section, one to six.

The pre-test, post-test experimental design in this study has the advantage of requiring minimal control as the groups of hearing impaired students are compared in terms of performances before and after exposure to treatment or therapeutic intervention. Therefore, measurement of dependent variable (self-concept) was made both before and after treatment conditions. The study used the two tailed t-test, frequency distribution tables, mean scores and standard deviations statistical analysis. The t-test will be applied to check for increase in the student's self-concept.

### IV. DATA ANALYSIS AND PRESENTATION OF FINDINGS

#### Testing of Hypotheses

The three null hypotheses were formulated to ascertain the efficacy of Cognitive-Behavioural Therapy (CBT) in enhancing the self-concept of the Hearing Impaired Students (HIS) of Kaduna State Special Education School, Kaduna were tested. The two-tailed t-test was used for analysis of the data at 0.05 significant level.

**Null Hypothesis 1:** There is no significant increase in the hearing impaired students' level of general self-concept after the application of CBT.

The result obtained from the t-test analysis of experimental hearing impaired students' pre-test and post-test scores on general self-concept is hereby presented in the table below:

**Table 1: Two-tailed t-test Analysis of Pre and Post-test Mean Scores on General Self-Concept of Respondents**

Self-concept	N	Pre-test $\bar{X}$	STD ( $\sigma$ )	Post-test $\bar{X}$	STD ( $\sigma$ )	df	t-value	Sig. Level
Physical Appearance	30	2.38	0.24	4.19	0.25	29	26.13	0.00
Physical Abilities	30	2.55	0.26	3.41	0.35	29	12.23	0.00
Relationship with Parents	30	3.35	0.79	4.48	0.28	29	7.34	0.00
Relationship with Peers	30	2.85	0.22	4.09	0.00	29	30.71	0.00
<b>Overall Self-concept</b>	<b>30</b>	<b>2.75</b>	<b>0.19</b>	<b>4.01</b>	<b>0.15</b>	<b>29</b>	<b>25.25</b>	<b>0.00</b>

Source: SPSS output computation (2021)

The result in the above table reveals that there was a significant difference between the pre-test mean score and the post-test mean score on physical appearance; that is 2.38 and 4.19 respectively. The mean scores of pre and post-test on physical abilities also revealed a significant difference, that is, 2.55 and 3.41. The mean scores of pre and post-test on the relationship with parents are 3.35 and 4.48, while on relationship with peers they are 2.85 and 4.09 respectively. From the trend of the scores, there was considerable increase from the pre-test scores to the post-test scores. This translates to the fact that CBT was able to improve the general self-concept of the respondents. This increase was very manifest in the gain made in respect of the general self-concept from a pre-test mean of 2.75 to the post-test mean of 4.01.

Thus, the overall calculated t-value of 25.25 is significant at the 0.05 level. Therefore, the null hypothesis

which states that “there is no significant increase in the hearing impaired students’ level of general self-concept after the application of CBT” is rejected. The alternate hypothesis which states that there is a significant increase in the hearing impaired students’ level of general self-concept after the application of CBT is accepted. CBT, as an enhancement programme has increased the hearing impaired students’ level of general self-concept.

**Null Hypothesis 2:** There is no significant increase in the male hearingimpaired students’ level of general self-concept after the application of CBT.

The result obtained from the t-test analysis of the male hearing impaired students’ pre and post-test scores on general self-concept is presented in the table below:

**Table 2: Two-tailed t-test Analysis of Pre and Post-test Mean Scores on General Self-Concept of Male Respondents**

Self-concept	N	Pre-test $\bar{X}$	STD ( $\sigma$ )	Post-test $\bar{X}$	STD ( $\sigma$ )	df	t-value	Sig. Level
Physical Appearance	17	2.38	0.25	4.16	0.17	16	23.73	0.00
Physical Abilities	17	2.55	0.29	3.39	0.32	16	8.66	0.00
Relationship with Parents	17	3.46	0.65	4.48	0.28	16	5.29	0.00
Relationship with Peers	17	2.84	0.24	4.09	0.00	16	21.37	0.00
<b>Overall Self-concept</b>	<b>17</b>	<b>2.76</b>	<b>0.18</b>	<b>3.99</b>	<b>0.12</b>	<b>16</b>	<b>20.82</b>	<b>0.00</b>

Source: SPSS output computation (2021)

The result in the table above reveals that there was a significant increase from the pre-test mean score of 2.38 to the post-test mean score of 4.16 obtained by the male respondents on physical appearance. The mean scores of pre and post-test on physical abilities also revealed a significant difference, that is, 2.55 and 3.39. The mean scores of pre and post-test on relationship with parents are 3.46 and 4.48, while on relationship with peers; it revealed 2.84 and 4.09 respectively. From the pattern of scores above, there was considerable increase from the pre-test scores to the post-test scores. This translates to the fact that the CBT has been able to improve the general self-concept of male respondents.

Thus, the overall calculated t-value of 20.82 is significant at the 0.05 level. Therefore, the null hypothesis which states that “there is no significant increase in the male hearing impaired students’ level of general self-concept after

the application of CBT” is rejected. The alternate hypothesis which states that there is a significant increase in the male hearing impaired students’ level of general self-concept after the application of CBT is accepted. Therefore, the result of experiment shows that CBT as an enhancement programme has increased the male hearing impaired students’ level of general self-concept.

**Null Hypothesis 3:** There is no significant increase in the female hearing impaired students’ level of general self-concept after the application of CBT.

The result obtained from the t-test analysis of experimental female hearing impaired students’ pre and post-test scores on general self-concept is presented in the table below:

**Table 3: Two-tailed t-test Analysis of Pre and Post-test Mean Scores on General Self-Concept of Female Respondents**

Self-concept	N	Pre-test $\bar{X}$	STD ( $\sigma$ )	Post-test $\bar{X}$	STD ( $\sigma$ )	df	t-value	Sig. Level
Physical Appearance	13	2.38	0.24	4.23	0.34	12	14.34	0.00
Physical Abilities	13	2.57	0.24	3.44	0.39	12	8.43	0.00
Relationship with Parents	13	3.22	0.94	4.47	0.28	12	5.01	0.00
Relationship with Peers	13	2.86	0.20	4.09	0.00	12	21.96	0.00
<b>Overall Self-concept</b>	<b>13</b>	<b>2.73</b>	<b>0.23</b>	<b>4.04</b>	<b>0.18</b>	<b>12</b>	<b>15.11</b>	<b>0.00</b>

Source: SPSS output computation (2021)

The result in the table above shows that there was a significant difference between the female pre-test mean score and post-test mean score on physical appearance, that is, 2.38

and 4.23 respectively. The mean scores of pre and post-test on physical abilities also has shown a significant difference, that is, 2.57 and 3.44. The mean scores of pre and post-test on

the relationship with parents are 3.22 and 4.47, while on relationship with peers; they are 2.86 and 4.09 respectively. From the trend of the scores it can be seen that there was considerable increase from the pre-test to the post-test scores. This invariably translates to the fact that CBT was able to improve the general self-concept of the female respondents.

The result of the overall calculated t-value of 15.11 is significant at 0.05 level. Thus, the null hypothesis which states that “there is no significant increase in the female hearing impaired students’ level of general self-concept after the application of CBT” is rejected. The alternate hypothesis which states that there is significant increase in the female hearing impaired students’ level of general self-concept after the application of CBT is accepted. CBT, as an enhancement programme has increased the female hearingimpaired students’ level of general self-concept.

## V. DISCUSSION OF THE FINDINGS

This discussion of findings centers around the general self-concept and the results of hypotheses tested.

**Null Hypothesis One:** The finding on this hypothesis was that there is a significant increase in the hearing impaired students’ level of general self-concept after the application of Cognitive-Behaviour Therapy (CBT). On the basis of this, the null hypothesis which stated that there was no significant increase in the hearing impaired students’ level of general self-concept after the application of CBT was rejected. This result is similar to the research findings of Rawls, (2003), Denwigwe, (2005) and Bagudu, (2009).

Rawls, (2003) researched on the effects of a self-esteem enhancement programme on some selected school children and found that it had improved their general self-esteem level. Denwigwe, (2005) also carried out a study on the effectiveness of self-esteem enhancement programme using Schiraldi’s self-esteem enhancement programme amongst 250 selected students. The findings of her study showed that there was a significant increase in the students’ level of general and academic self-esteem after the application of Schiraldi’s self-esteem enhancement programme.

Bagudu, (2009) carried out a study on the effects of the application of therapeutic conditions of client-centered therapy on the self-concept of some selected armed robbers in Kaduna central prison. The finding revealed that client-centered therapy was able to improve the self-concept of armed robbers. The finding of this study is also similar to the report made by Odoemelam (2006). Odoemelam, (2006) reported that, Ota, (1999) and Okoro, (2000) used client-centered, reinforcement, rational-emotive and behavior therapy to improve the self-concept of physically challenged and hearing impaired secondary school students in Ebonyi and Abia States respectively.

**Null Hypothesis Two:** The finding on this hypothesis showed that there is a significant increase in the male hearing impaired students’ level of general self-concept after the application of Cognitive-Behavioural Therapy (CBT). On this premise, the null hypothesis which stated that there is no

significant increase in the male hearing impaired students’ level of general self-concept after the application of CBT was rejected. This result corroborated the study of Denwigwe (2005) and that of Smoll, Smith, Barnett and Everett (1993). Smoll, et’al, (1993) found out that there is a significant increase in general self-esteem of boys after self-esteem enhancement training. Denwigwe, (2005) found that there is a significant increase in the male students’ level of general and academic self-esteem after the application of Schiraldi’s self-esteem enhancement programme.

**Null Hypothesis Three:** The finding on this hypothesis showed that there is a significant increase in the female hearing impaired students’ level of general self-concept after the application of Cognitive-Behavioural Therapy (CBT). On the basis of this, the null hypothesis which stated that there was no significant increase in the female hearing impaired students’ level of general self-concept after the application of CBT was rejected. This result corroborates with the study of Denwigwe, (2005) and Bagudu (2009). Denwigwe, (2005) found out that there is a significant increase in the female students’ level of general and academic self-esteem after the application of Schiraldi’s self-esteem enhancement programme. Bagudu, (2009) also found out that there is no significant difference between the self-concept of male and female armed robbers, Muslim and Christian armed robbers, and the level of education attained by the armed robbers after being exposed to the client-centered therapy.

## VI. CONCLUSION

From the research findings it can be concluded that the applicability of CBT was able to enhance the general self-concept of the Hearing Impaired Students (HIS).

It can also be concluded that CBT as an enhancement programme does not discriminate against males or females. To put it more succinctly, CBT is not gender biased, since the findings showed that it has significantly improved the self-concept of both the male and female students.

## RECOMMENDATIONS

The following recommendations are based on the findings of this study:

- There is need for the introduction of self-concept enhancement programmes as an integral part of the school experience of disabled persons.
- The family with whom the disabled child lives has a lot to contribute toward adjustment to his/her situation. It has to provide a favourable emotional home environment that will enable the special need child to be at home with himself/herself and then have time and concentration to go through the stages of adjustment.

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