CONTENTS

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(A Statutory Body Under the Ministry of Social Justice & Empowerment)

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Dear Readers,
It is informed to all the readers and subscribers that due to certain technical reasons, the combined issue of Volume 6, No. 1 & 2 (January to December 2010) is being published.

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From Chairperson's Desk

The sixth volume of Journal of Rehabilitation Council of India (JRCI) is in your hands. RCI has been publishing the biannual journal for the last 6 years. However, despite the rapid growth of training institutions and organizations providing services to persons with disabilities, research in this field is still a low priority area. Poor response for submission of research articles for publication in JRCI substantiates this fact. Request for research articles in JRCI is made through the Newsletters of RCI circulated to over 50,000 rehabilitation professionals and personnel. As a result, the present volume is almost one and a half years behind schedule. The quality of articles received is also not up to the mark. In some cases, authors do not return the articles after incorporating modifications as suggested by the peer reviewers leading to delay in publication. Therefore, I appeal to the researchers to contribute quality research articles based on empirical research studies. RCI is planning to initiate some schemes for supporting research focusing on various aspects of human resource development in the disability rehabilitation field. Plans are also afoot to introduce schemes for publication and research fellowships for higher education. I solicit your advice in this regard.

The current issue has a total of ten articles, out of which nine are based on empirical research studies and only one is theory based. The first article tries to find out the significant difference between receptive and expressive communicative competence of adults with hearing impairment in different environments. The findings of the study indicate more communication barriers in almost all aspects of communication at SSC level as compared to graduate level. A study of vocational training and placement of persons with mental retardation given in the next article establishes positive correlation with confidence, adjustment, eye-hand coordination and other such variables. Another article is based on survey study to explore adaptive skills and educational experiences of school students with mental retardation. The findings of the study can help special education teachers to plan and implement the strategies to improve the adaptive skills of special children.

Another interesting research article is on the parental expectations about their children's outcome from cochlear implants. A study on self-concept among hearing and hearing impaired students revealed that while hearing status significantly affects the self concept, gender of the subjects has no significant bearing. Other articles highlight new trends in deaf education, Hearing Aid Effect (HAI), effect of academic anxiety on the academic achievement

of visually impaired students, comparative study of static and dynamic wrist hand orthoses for hand function in adults with tetraplegia, and effects of neurological condition of Epilepsy on the social and functional skills of the mentally challenged.

I am sure these articles will be of immense use to researchers, academicians, professionals and other stakeholders. I compliment the contributors for their efforts. I also thank the reviewers for their candid comments.

Maj. Gen. (Retd.) Ian Cardozo, AVSM, SM

Chairperson

From Chief Editor's Desk

The Journal of Rehabilitation Council of India, a peer reviewed journal, publishes articles in the field of disability rehabilitation and special education, both theory as well as research based. Articles on different disabilities covering hearing impairment, visual impairment, mental retardation, cerebral palsy, autism, locomotor impairment, etc., are published from time to time. JRCI has received national and international recognition. However, due to shortage of good articles, a combined annual issue is published. I would, therefore, invite all the experts to send their articles which can be published for the benefit of the readers.

There has been an acute shortage of published literature in the field of disability rehabilitation and special education in India. To meet the requirement of literature in this area, the Council has been bringing out various publications including the RCI Newsletter, Manuals for Diploma level courses, both in English and Hindi, Status of Disability in India, etc., with the help and support of experts.

'Punarbhava' web portal, launched by the Council in collaboration with Media Lab Asia with a mission to provide latest information on disability rehabilitation issues, has been re-designed to adhere to Level AA of the Web Content Accessibility Guidelines (WCAG 2.0) of the World Wide Web Consortium (W3C). The user-friendly portal ensures that it is accessible and responsive to the needs of persons with disabilities as a one-stop site for comprehensive and interactive information on disability rehabilitation. The web-site of RCI is also being made comprehensive and conforms to W3C norms for the benefit of persons with different disabilities.

To utilize the satellite communication facility, Navshikhar Channel was started at RCI in collaboration with Indian Space Research Organization (ISRO) and Media Lab Asia (MLA) that transmits live and recorded programmes on various topics of disability rehabilitation and special education. Reach of the system has been extended to more than 500 centres all over the country.

The Council has also proposed to revive its scheme of research and publications to promote research in the area of disability rehabilitation and special education and support publication of books, manuals, etc., to meet the requirement of researchers, professionals, administrators, students, persons with disabilities and their family members.

I appeal to all the experts, professionals and others interested in the area of disability rehabilitation and special education to send their contribution to JRCI for making it more comprehensive and timely.

Dr. J.P. Singh

Member Secretary & Chief Editor

STUDY OF COMMUNICATIVE COMPETENCE OF ADULTS WITH HEARING IMPAIRMENT

Indranil Chatterjee[1], Usha Dalvi[2], Zoramsiami[3]

ABSTRACT

The present study was undertaken to investigate whether there is a significant difference exists between receptive and expressive communicative competence in home and social environment of persons with hearing impairment who are graduates and secondary school certificate (S.S.C.) and also to see whether education has any impact on the communicative competence. The sample comprises of 60 adults, 30 each in S.S.C. and graduate and each group consists of 15 males and 15 females. The participants were adults with prelingual severe to profound hearing loss with normal intellectual ability and no history of visual impairment or low vision or other associated problems with ability to read, write and understand English language and sign language. "Profile Questionnaire For Rating Communicative Performance" (Sanders, 1975) was used to extract information regarding their receptive abilities of adults with hearing impairment. Reliability score for social environment questionnaire was α (alpha)=0.8305 and reliability for home environment questionnaire was α (alpha)=0.7293 which indicated that both the questionnaires were reliable for research purpose. The results obtained indicates that the adults with hearing impaired were found to perform better in home environment than in social environment; graduate adults with hearing impaired had better communicative competence than S.S.C. adults with hearing impaired; expressive communicative competence was found to be better than receptive communicative competence; and communicative competence of females was found to be better than males. Poor communicative competence has been found in individuals with hearing impairment. The study has implications both in terms of assessment and intervention.

Communication is the process by which individuals exchange information and convey ideas (Owens, 1990). Human communication is interpersonal and involves the sharing of thoughts, meaning and ideas between people. It can be broken down into two broad levels: verbal and non-verbal. Verbal communication involves the use of words as symbols to exchange ideas and also includes spoken language, written, gestural and picto-graphic languages. In contrast to the more structured rule systems associated with verbal communication, non-verbal

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communication is much less formal or structured. It may include a wink, a smile, a touch, maintaining or avoiding eye contact, even assuming distinctive posture which may be with or without the use of words.

The degree to which a speaker is successful in communicating, measured by the appropriateness and effectiveness of the message is called communicative competence (Dore, 1986). According to Light (1989), "Communicative competence is a complex process that relies on knowledge, judgement and skills in four domains: linguistic, operational, social and strategic". Linguistic competence includes both the means to represent ideas and the knowledge of the language (or non-linguistic) code. Operational competence is the individual's ability to manage specific devices or techniques used in the communication process. Social competence refers to the sociolinguistic, pragmatic knowledge necessary to communicate. Strategic competence refers to strategies to repair communication breakdown, such as, requesting additional information or recognizing additional information or recognizing that message has been misunderstood.

Communicative competence consists of comprehensive ideas of the heterogeneousness of the speech community, differential competence, the constitutive role of socio-cultural features, socio-economic differences, multilingual mastery, relatively of competence in different languages, expressive values, socially determined perception, contextual styles and shared norms for the evaluation of variables (Hymes, 1971). Individuals are considered communicatively competent within a particular speech community when they know how to participate in socially appropriate ways (Florio-Ruane, 1987; Saville-Troike, 1989). Fundamental to the concept of communicative competence is the ability to produce and understand ideas appropriate to the social context in which they occur, with emphasis on accuracy of idea transfer rather than mere correctness of language form or delivery.

Competent communication must satisfy two requirements: (a) the speaker's behaviour must relate to the topic or situation, and (b) the speaker's behaviour must have a practical effect on the listener's behaviour. The essence of communicative competence includes the ability to modify the grammatical forms, underlying meanings, intentional force, and the delivery style best suited to the intended message. Communicative competence can be affected by various factors which includes non-verbal communication (eye contact, facial expression, gesture, body posture and proximity, etc); communicative functions (questioning, explaining, joking, commanding, etc); communicative context (relationship between communicative partners, formality of situation, etc); and conversational context (rules of initiation, turn taking, topic maintenance, topic change, etc).

Thus competent language user must know not only rules of social interaction but also how and when to apply them, and how to vary communicative style and content according to movement—movement changes in the social environment.

According to ASHA (1981), "Hearing impairment is used to mean a deviation or change for the worse in either auditory mechanism or auditory function, usually, outside the range of normal hearing sensitivity". The loss of 70 dB and above denotes severe hearing impairment and hearing loss above 90 dB denotes profound hearing impairment.

Poor communication performance associated with sensorineural hearing loss comes about not only because of depletion of sensory input as the "primary" cause, but also because of

associated secondary effects which may be just as important. These secondary effects are concerned with the contextual aspects of language acquisition. Contextual aspects can be divided into processes which are external to the individual's interaction skills, turn taking, adult control of the communication process in the face of reduced communicative abilities and processes which are internal.

Persons with hearing impairment experience in all areas is a loss "real conversation", defined here as meaningful, rich, and sustained dialogue through which complex, sensitive and subtle information can be exchanged. Deaf people sometimes find it difficult to experience to establish close relationships with hearing people. For example, they may find it difficult to experience fully the closeness, acceptance and shared identity traditionally associated with family. Barriers to communication between deaf and hearing people negatively affect the experience of deaf persons whereas these barriers have contributed to the development of positive interactions and relations among themselves.

According to Kretschmer (1980), the competent communicator is able to conceive, formulate, modulate and issue messages and to perceive the degree to which intended messages are successfully conveyed. In the day-to-day conversation, communication with the hearing is considerably less successful than with deaf people. The deaf who lives only with hearing people is at a disadvantage as there is lack of information sharing and discussion between deaf and hearing people. Literature shows that there is a significant barrier in communication between deaf and hearing co-workers. Inability to access informal communication networks may also reduce deaf employees' opportunities to develop relationships with co-workers. Many hearing impaired expressed a persistent sense of isolation at work, a feeling of being "alone in a crowded room".

Garstecki and Erler (1996) studied older sensorineural hearing impaired subjects and found that in social situations like outdoor settings, restaurants, etc., deaf individuals had difficulty as well as in home environment like communicating with friends and family members. In noisy environment they found more difficulty and had to see the speaker's face.

Verma (1999) reported that 98.2% of hearings impaired were having communication difficulty with strangers. 64.6% found it easy, 30.1% difficult and only 5.3% found it very difficult to communicate with family members.77.9% reported that they felt lonely in social gatherings when there was communication gap, and nobody gave attention, the tendency of reluctance tended to develop.

Jeanes, Nienhuys & Rickards (2000) found that the profoundly deaf students had difficulty in consistently using appropriate, productive pragmatic behaviours in their face-to-face dyadic interactions.

Swati (1993) studied early communication skills of the 76 hearing impaired children in India and found that expressive skills were better than receptive skills, responses were better in structured situation compared to natural situation, non-verbal scores are better than verbal scores.

Nagraja, Sinha and Subramanyam (1994) studied 50 severe to profound hearing impaired with the mean age of 22.87 years ranging from 19 to 35 years. They found that social adequacy of hearing impaired was independent of age and of degree of hearing loss. They also reported that lower education than SSC showed better or higher social adequacy as compared to subjects with higher education. They have also found sex difference in social adequacy of hearing impaired.

OBJECTIVE

The objective of this study is to find out the receptive and expressive communicative competence of individual with hearing impairment at home and social environment. And also to see whether education has any impact on the communicative competence.

METHODOLOGY

The present study aimed to investigate the receptive and expressive communicative competence of adults with hearing impairment in two educational backgrounds, namely, S.S.C. and graduates. A self rating questionnaire was used to found out the communicative competence in two environmental conditions, i.e., "home environment and social environment".

Participant

Total participants for the study were 60 adults with hearing impairment in two groups with different educational backgrounds.

Group 1: 30 participants with hearing impaired with S.S.C.

Group 2: 30 participants with hearing impaired graduation.

Each group consisted of 15 males and 15 females.

Selection criteria for the participants in the study

1. Adults with prelingual severe to profound hearing loss.
2. Normal intellectual ability.
3. No history of visual impairment or low vision.
4. No history of other associated problem.
5. Ability to read, write and understand English language and also able to communicate through sign language.

Tools: Demographic information collected by using personal information data sheet was attached to the questionnaire.

"Profile questionnaire for rating communicative performance" (Sanders, 1975) was used for the purpose of eliciting information regarding the receptive abilities. It consists of two sections: communicative competence in home environment (comprising of 9 statements) and in the social environment (comprising of 7 statements). In the "Social Environment" questionnaire, statement no. 2 and no. 4 were modified to suit the Indian context. A 4-point rating scale is used to assess severity of difficulties faced and 3-point scale is used to assess the frequency of the difficulties faced.

Based on "Profile questionnaire for rating communicative performance" (Sanders, 1975), a similar kind of 20 items questionnaire was developed. Amongst 20 items, 9 items were used to measure communicative competence in the home environment and 11 items were used to measure communicative competence in the social environment. A 4-point rating scale is used to assess severity of difficulties faced and 3-point scale is used to assess the frequency of the difficulties faced.

Procedure

Participants were oriented about the purpose and usefulness of the study before providing the questionnaire. When any clarification was sought on any question by the subjects, it was explained by the researchers and/or by the sign language interpreter. Subjects were assured about the confidentiality of their responses. There was no time limit regarding the completion of questionnaire. It was observed that approximately 45 minutes to 1 hour was required to complete the questionnaire. Participants were instructed to go through the questionnaire carefully and completely and to give a tick mark in the correct option for a given statement. And to justify if their options were: For Part (a): -1 or -2; Part (b): 2 or 3.

The responses were scored as follows:

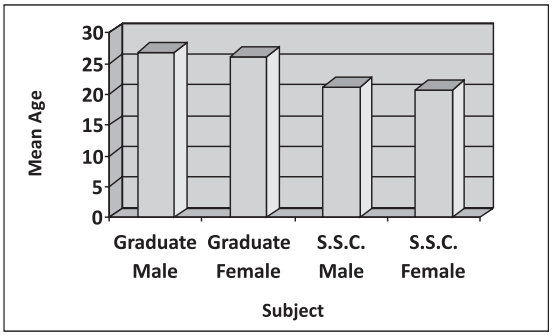
Part (a)		Part (b)	
Little or no difficulty	+2	Sometimes	1
Some difficulty (but not a lot)	+1	Often	2
A fair amount of difficulty	-1	Very often	3
Great difficulty	-2		

A survey design was used in this study and questionnaire was subjected to both informal and statistical means of reliability check. Informally, 25 questions were given to 5 judges (3 normal judges having extensive experience in the field of rehabilitation of hearing impairment and 2 highly qualified deaf judges). Necessary changes that were suggested were incorporated in drawing up of the final version of questionnaire with 20 items.

Statistically reliability of the expressive communicative competence was established using "Chronbach's alpha" reliability test. Reliability score for social environment questionnaire was α(alpha)=0.8305 and reliability for home environment questionnaire was α(alpha)=0.7293 which indicated that both the questionnaires were reliable for research purpose.

RESULTS

Mean age of different groups of hearing impaired individuals



Graph 1

Graph 1 indicates mean age of the participants with hearing impaired in four groups such as graduate male (26.73 years), graduate female (26.13), S.S.C. male (21.2 years) and S.S.C. female (20.8 years).

Table 1: Mean, S.D, t-value, and P-value (one tail) for total scores of home and social environment

Group	*Mean*	*N*	*Standard Deviation*	*t*	*df*	*P-value (one-tail)*
Total home environment (Reception and expression)	12.85	60	14.24	3.006	59	0.003
Total social environment (Reception and expression)	10.17	60	16.46			

From Table 1, it can be inferred that communicative competence in the home environment is better than the communicative competence in the social environment. Garstecki and Erler (1996) studied older sensorineural hearing impaired subjects and found that in social situations like outdoor settings, restaurants, etc., deaf individuals had difficulty as well as in home environment, like communicating with friends and family members. In noisy environment they found more difficulty and had to see the speaker's face.

Table 2: Mean, S.D, t-value, and P-value (one tail) for total reception and expression scores

Group	*Mean*	*N*	*SD*	*t*	*df*	*P-value (one-tail)*
Total reception (Home and social)	3.9	60	14.48	-9.475	59	0
Total expression (Home and social)	19.12	60	17.84			

Table 2 indicates that there is significance difference between the score of receptive and expressive communicative competence in both home as well as in social environment.

Table 3: Mean, S.D, t-value, and P-value (one tail) of Graduate and S.S.C. persons with hearing impairment communicative competence in the home and social environment

Education	*Mean*	*N*	*SD*	*T*	*df*	*P-value (one-tail)*
Graduate	75.87	30	34.08	4.41	43.52	0
S.S.C	16.2	30	65.8			

It may be inferred from Table 3 that communicative competence of graduate deaf individuals is better than deaf individuals who have completed S.S.C. Foster (1998) studied hearing impaired students in two groups such as doctoral level and the lower educational level. She found that higher educational level students' communicative proficiency was more than the hearing impaired students who had lower education level.

Table 4: Mean, S.D, t-value, and P-value (one tail) of Male and Female persons with hearing impairment communicative competence

Sex	*Mean*	*N*	*SD*	*T*	*df*	*P-value (one-tail)*
Male	28.13	30	67.39	-2.401	51.29	0.01
Female	63.13	30	46.13			

It is observed from Table 4, that communicative competence of female adults with hearing impairment is better than male adults with hearing impairment. Gregory, Bishop and Sheldon (1995) studied and reported that young male deaf were having limited language skills as well as communicative skills compared to young female deaf. They also found that female deaf individuals preferred higher education (SSC) compared to male deaf individuals. Deaf women preferred to engage in conversation compared to deaf men while the men seemed more likely to take part in group activities where the communication demands were more predictable and less complex.

Table 5: Receptive Communicative Competence in Home and Social Environment

Items	*Graduate Male (%)*		*Graduate Female (%)*		*S.S.C. Male (%)*		*S.S.C. Female (%)*	
	Home	*Social*	*Home*	*Social*	*Home*	*Social*	*Home*	*Social*
1	13.33	13.33	0	0	26.67	53.33	6.67	40
2	20	0	13.33	0	20	33.33	0	6.67
3	46.47	33.33	40	26.67	53.33	26.67	66.67	26.67
4	40	40	20	13.33	66.67	73.33	46.67	60
5	20	53.33	20	26.67	46.67	86.67	0	53.33
6	40	13.33	6.67	6.67	40	46.67	20	4
7	0	20	0	6.67	46.67	66.67	26.67	40
8	33.33	-	0	-	53.33	-	66.67	-
9	53.33	-	40	-	73.33	-	66.67	-

From Table 5, it may inferred that the graduates irrespective of gender variation communicate more effectively in all aspects of communicational intent at both home and social environment, thus the role of education in the achievement of proficiency in communicative competence is established.

Table 6: Expressive Commmunicative Competence in Home and Social Environment

Items	*Graduate Male (%)*		*Graduate Female (%)*		*S.S.C. Male (%)*		*S.S.C. Female (%)*	
	Home	*Social*	*Home*	*Social*	*Home*	*Social*	*Home*	*Social*
1	0	6.67	6.67	0	6.67	60	20	20
2	0	0	0	6.67	6.67	13.33	6.67	0
3	13.33	13.33	0	0	40	66.67	20	40
4	0	20	6.67	6.67	33.33	46.67	33.33	13.33
5	0	6.67	20	0	53.33	33.33	13.33	13.33
6	0	0	6.67	0	46.67	40	33.33	6.67
7	0	0	6.67	0	16.47	66.67	0	33.33
8	0	6.67	6.67	6.67	26.67	46.67	6.67	33.33
9	20	6.67	6.67	13.33	66.67	46.67	13.33	6.67
10	-	13.33	-	33.33	-	46.67	-	26.67
11	-	13.33	-	23.67	-	80	-	46.67

Table 6 indicates that in home environment, graduate persons with hearing impairment find less difficulty in expression as they can easily anticipate the situational variations regardless of the complexities at home.

In social environment also, the graduate hearing impaired faced fewer difficulties whereas S.S.C. persons with hearing impairment faced marked difficulties to express themselves.

DISCUSSION

This study indicates that higher levels of education facilitate effective communication proficiency in terms of competence in the two different environments, namely, home and social. Results of the qualitative analysis indicated that S.S.C. persons with hearing impairment face much more difficulty compared to graduate persons with hearing impairment in almost all the aspects of communication due to various communication barriers. Hence, poor communicative competence has been found in individuals with hearing impairment. The study has implications both in terms of assessment and intervention. It also indicates that the persons with hearing impairment face communication barriers over a lifetime of interactions at various levels with the hearing people which makes it difficult for them acquire the wealth of social and cultural knowledge which hearing people learn incidentally through observation of others.

CONCLUSION

This study can be used to counsel the family members about the communicative competence and the factors affecting communication of deaf individual at various levels. It also throws light on the pursuing higher education options for the hearing impaired so that in turn hearing impaired persons can achieve proficiency in communicative competence which will enable them to be a confident contributor to the society. The study has its limitation in that only a limited number of subjects were studied, medium of instruction in the school was not taken into consideration, every aspect of difficulties which were faced by the deaf individual in home as well as in the society were not being considered and different types of educational system, where the subjects studied were not taken into consideration.

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VOCATIONAL TRAINING PROGRAMME FOR MENTALLY CHALLENGED CHILDREN THROUGH PSYCHOLOGICAL APPROACH

Kumar, M.[1], Sharma, D.[2] & Gunthey, R.[3]

ABSTRACT

For person with mental retardation access to vocational training and employment have been negligible throughout most of this country's history. Even today many Persons with Mental Retardation are employed or unemployed in spite of the dramatic increase in vocational research and development that has taken place in the 1970s and 1980s. Rao and Siva Kumar (2004) emphasize that, in order to provide and expand a systematic vocational training and placement for the persons with mental retardation there is a need to provide proper vocational climate. In urban areas, the major threat to environment comes from air-pollution caused by the emission from petrol and diesel run vehicles. Heavily polluted air enters our lungs and causes irreparable damages to the health. A number of programmes and projects initiated and funded by the Government of India have been working to combat this menace, and these to an extent have been successful in controlling the environmental pollution. This research envisages twin advantages. On the one hand the environmental pollution will be controlled and curbed and on the other hand Person with Mental Retardation will be provided with some job which not only will help them monetarily, but will also enhance their self-image and self-concept. Objective of this research is to provide adequate training to the chosen Person with Mental Retardation in making chalks, paper bags and plantation of trees and enable these children to have a feeling that they are also part of mainstream. Five persons with Mental Retardation were selected on the basis of their mental age and psychomotor coordination. Only those with a mental age were selected between 8 and 12 years. Rigorous and regular training of 4 hrs was given to them. In this training a series of demonstrations of construction of making chalks and the demonstration of making paper bag were given by the field experts. It is observed that there has been an overall developments in self-confidence, self-recognition, self-evaluation and eye-hand coordination.

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WORK DONE IN INDIA AND ELSEWHERE

From the time the first settlers arrived in the United States, there has always been a strong belief that "Individuals should be free to earn their livelihood in whatever way that proves most profitable". However, this belief has not been applied equally for all people. The persons with mental retardation access to vocational training and employment have been negligible throughout most of this country's history. Even today many persons with mental retardation are employed or unemployed in spite of the dramatic increase in vocational research and development that has taken place in the 1970s and 1980s (Bellamy et al., 1985; Revell, Wehman, & Arnold, 1985). Vocational training programme for persons with mental retardation who have often been narrowly focused, that is, these programmes are often focused, on the development of only one or two specific skill areas. Some programme has prepared their clients for a job market that no longer exists. In some extreme cases, there is no career and/or vocational programme at all. Career education is a total education concept that systematically coordinates all schools, family, and community components, thus, facilitating the individual's potential for economic, social and personal fulfillment. Brolin (1982) suggested six areas of primary responsibility for special educators in developing occupational guidance and preparation for such children: 1. Knowing and exploring occupational possibilities. 2. Making appropriate occupational decisions. 3. Exhibiting appropriate work behaviours. 4. Exhibiting sufficient physical and manual skills. 5. Acquiring specific saleable job skill. 6. Seeking, securing and maintaining satisfactory employment.

Rao and Siva Kumar (2004) emphasize that, in order to provide and expand a systematic vocational training and placement for the persons with mental retardation, there is a need to pay attention to vocational climate, full complement of vocational phases in the vocational training centers, more beneficial functional training for employment success in the special schools.

Often it is seen that persons with mental retardation are not seen with an equal eye in comparison to the normal child of the society. As it is known that if a normal child is motivated then he or she will do the best, and they are boosted up, so that, they reach up to the parents' expectations. Previously persons with mental retardation were debarred from the society, but now society is trying to help them, find some rehabilitation measures for their betterment. Many NGOs, organizations as well as child welfare societies are engaged with such type of activities for the person with mental retardation. Gunthey (2004) reported in his pilot study that if proper and rigorous training with patience is given to persons with mental retardation their potential skills can be used in the promotion of environmental protection.

FACTS ABOUT MENTAL RETARDATION

Mental Retardation is impairment of intellectual and physical ability which effects learning and personality. Their shared experience emotions, anticipations are same as other normal human beings yet this disability makes them sub-normal and creates obstacles in even frequent adjustment of our schedules.

This result derives in society's prejudice and discrimination. The defects in adaptive period manifested during the development phase create dependence on others. As based and derived

out of Intelligent Quotient (IQ) of an individual the sub-types are: Mild 50-70, Moderate 35-49, Severe 20-34, Profound Below 20 IQ. But now DSM-IV mentions mild category in between 50 and 75. Mild and moderate mental retardation can be checked and mild retardation is in fact, equivalent to the educational category "Educable" Individuals at this level can develop social and communication skills during early formative years. They can bear educational, social and vocational skills at later age also.

Moderate mental retardation equates with educational category called "Trainable". Under adequate supervision and guidance they can turn as progressive individual capable enough to perform and manage at least their daily chores.

As a matter of fact the persons with mental retardation are guarded off by the society. The psychologists can increase motivation and attitudes of individual and make an effort to canalize these people in the mainstream of the society.

BACKGROUND OF PRESENT RESEARCH

Environmental pollution is one of the most crucial menaces which the present day world has been facing. We all, in one way or the other and directly or indirectly, suffer from its consequences.

A number of programmes and projects initiated and funded by the Government of India have been working to combat this menace, and these to an extent have been successful in controlling the environmental pollution.

Of the numerous measures adopted to curb and control the environmental pollution, the plantation of trees is one that has been going on at various places and with some success. If this process of plantation of trees is brought to the urban areas, i.e., cities and both the areas of a city, i.e., inside and outside areas are covered under it, the benefits can be enormous.

A number of polluting factors exists in cities and many of these can be easily and effectively controlled and thus a way out can be found to reduce and control the hazards being caused by the environmental pollution.

In the urban areas, the major threat to environment comes from the air-pollution caused by the emission from petrol and diesel run vehicles. The heavily polluted air enters our lungs and causes irreparable damages to the health. We can get rid of this air pollution by saying a big 'No' to the use of vehicles which run on petrol and diesel. But it is easier said than done.

This impossibility compels us to make efforts to search for other alternatives and one such alternative is intensive and extensive plantation of trees. Once this alternative is accepted, another crucial and correlated question is : who these persons should be that must be associated with the task of the planting of trees?

This investigator has a long experience of working very closely with children and adults with mental retardation. According to his experience, such individuals are very hard working, dedicated to their job and persevering. Once trained to do a particular manual work, one can be rest assured that he/she will have nothing to complain about them. The work of plantation of trees can be successfully accomplished by utilizing these qualities of determination, hard work and perseverance.

This research also envisages twin advantages. On the one hand the environmental pollution will be controlled and curbed and on the other hand these intellectually deficient and slow individuals will be provided with some job which not only will help them monetarily, but will also enhance their self-image and self-concept.

Another big stumbling-block in the path of environmentally healthy world is the blind use of polythene. Nobody needs to be told about the way we have been using this ghastly material. Its bio-degradability is its worst curse. It is a hydra-headed monster. If thrown, it destroys the land and soil. If burnt, it emits dangerous poisonous fumes.

To fight this monster, the paper bags made up of newspapers and other waste paper can be used. Instead of the disposable cups made up of plastic earthen pots can be used for the benefit of all. In producing these earthen pots / cups, eye-hand coordination and high skill in shaping is involved.

OBJECTIVES

The people at large do not consider the persons with mental retardation as capable of doing anything worthwhile. In fact, this is a misnomer. They do possess potentialities provided they are tapped well in time.

A number of similar, but not identical tasks can very well be performed by these persons with mental retardation provided they are trained well on psychological grounds. Especially, the manual work like making candles, paper bags, chalks, etc., are already going on in a number of institutions where similar persons are actively involved in. Keeping the above, the following objectives of the study are being enumerated below:

1. To find out the level of intelligence and efficiency of the persons with mental retardation through standardized psychological tests.
2. To provide adequate training to the chosen persons with mental retardation in making chalks, paper bags and plantation of trees.
3. To enable the persons with mental retardation to have a feeling that they too can become useful member of the society and contribute in the preservation and protection of the environment.
4. To enable the persons with mental retardation to acquire skills to make them self-sufficient in their lives.

HYPOTHESIS

It is hypothesized that proper rigorous training of mentally challenged children according to their aptitude and mental age, can be helpful in the promotion of environmental protection.

METHODOLOGY

The researcher has established a good rapport with the children prior to the starting of the training.

SAMPLE

Five children with mental retardation were selected on the basis of their mental age and psychomotor coordination. Only those with a mental age was between 8 and 12 years were selected.

DESIGN

Rigorous and regular training of 4 hrs. was given to them. In this training a series of demonstrations of construction of making chalks and the demonstration of making paper bag were given by the field experts. The training was given in a group; each child was distributed by his work. In this way whole work was distributed among parts. Preparations of chalks or paper bags were completed on an assembly line model. The work was divided among the group to make a proper coordination of the work. The given task was allotted like one person for the paper cutting, second for folding and pasting, and the third for finishing. This work was assigned in such a way that if someone among them is irregular or not performing the task properly, the other child can instruct him to do the work properly and well in time. Complaint could be made to the supervisor by the other children if the work was not properly done. It establishes a proper coordination of the work. Selling the finished products in the market in their presence motivated these persons. This encourages and motivates them to perform their task more efficiently. In this way slowly and gradually, but confidently they have learnt the things. Apart from this, parents were also acquainted with the training procedure.

Procedure

For chalk making the first step is to train the children to mix the chalk powder with appropriate ratio of water and dry mould is layered with oil. the paste is then poured in the mould, which was followed by unfolding the mould in sunlight and putting the wet chalk sticks on paper carefully in sunlight. After completion of drying process, the dried chalks are placed in small card board boxes. Nearly thirty chalk sticks are arranged in one box to supply to the stores.

The preparation of earthen pots was demonstrated by a trained pot-maker. The prepared mud/clay was made available to all the persons with MR and then the mud/clay was rolled out on a glass surface which is easy to work. It was followed by placing the mud on pot maker wheel. With the help of trained pot maker the shape to the clay was given by these persons and they also learned to put carefully the wet clay pot in the sun light.

A location of 30 by 30 feet is chosen for plantation. The persons with MR were demonstrated to dig the pits and ask to do so. After digging at least 12 inches hole, they were trained to put sapling it. Thereafter steps of watering to these saplings were demonstrated. Children were asked to repeat the steps. Gardening and planting trees was done by these persons with mental retardation at TEPSE Center of Jai Narain Vyas University, Jodhpur.

After providing them adequate training to make chalks and paper bags, and in plantation of trees, the persons with mental retardation were engaged in these activities in the employment market.

RESULT

After a rigorous training programme for these 5 persons with mental retardation, it is observed that (1) they develop more confidence, (2) their adjustment level to their surroundings improved and increased, (3) their eye-hand coordination improved, (4) their self-recognition and self-evaluation increased, (5) interaction with other children is also improved adequately, and (6) sense of self-learning is developed among themselves.

UTILITY

The practical utility of the results of present research project are:

1. The other cities in Rajasthan State can also follow this programme and strategies can be used in the above projects for plantation.
2. It will help in providing self-employment opportunities to the persons with mental retardation.
3. It will also contribute to the improvement of environment.
4. This would help in main streaming of persons with mental retardation in the main scheme because of change in society's attitude.

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ASSESSMENT ON ADAPTIVE SKILLS AND EDUCATIONAL EXPERIENCES AMONG MENTALLY RETARDED STUDENTS AT KODAIKANAL

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ABSTRACT

The purpose of the study was designed to explore Adaptive Skills and Educational Experiences of school students with Mental Retardation at Kodaikanal. The investigator has chosen survey method for this study. The investigator collected 70 samples (50 Mentally Retarded students and 20 Mentally Retarded teachers) from Kodaikanal Schools in Kodaikanal Taluk. The research extends it to assess how the Adaptive Skills and Educational Experiences differ among Mentally Retarded Students with regard to age, locality, type of school & level of retardation. The educational experiences may be because of instructional practices in general, vocational and non-vocational special education classrooms, participation of students in various settings, educational support services are accessible and adaptive skill training are being provided to mental retarded students. Thus these findings reveal that there is a relationship between Adaptive Skills and Educational Experiences among Mentally Retarded students at Kodaikanal. It may help the special educators to plan and implement the strategies to improve their adaptive skills.

INTRODUCTION

The Education of Special Children in India is a challenging field. In this light, the group of children and youth considered **"Disabled"** today has changed significantly since the mid-1970s. This does not suggest that special education services have been dramatically successful in remedying learning problems or that medical science has greatly reduced the incidence of disability conditions. The range of instructional needs presented to students with handicapping conditions or a special talent was been relatively constant over time.

As all of us are aware, children with mental problems have trouble in learning. Nowadays they can go to school and receive education. Since the passage of the **Education of All Handicapped Children Act (P.L. 94-142)** in 1975, Children with mental retardation

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have had increasing educational opportunities (Williamson et al., 2006). In more recent years, the move toward greater inclusion of students with mental retardation has fueled interest in the academic and social outcomes of these students, as researchers, educators and advocates consider the implications of educating students with general versus special education settings (Freeman and Alkin, 2000; Hughes et al., 2002; Lipsky and Gartner, 1997; Sandler, 1999). In addition, concerns have been raised as to whether curricula and instruction provided in various instructional settings are effective, appropriate, and properly implemented (Bouck 2004; Conderman and Katsiyannis, 2002).

Mental retardation is a complex phenomenon, and fundamental beliefs about it regularly change over time. Mainstream professional thought today conceptualizes it as a statement about an individual's present level of functioning, with two primary features: **Limitations in Intelligence and Limitations in adaptive behavior.** The American Association on Mental Retardation (AAMR), arguably the leading professional organization in the field of mental retardation, offered the following definition of mental retardation in 2002 in its 10th edition of the AAMR reference manual on definition and terminology (Luckasson, Borthwick-Duffy, Buntinx, Coulter, Craig, Reeve, et al., 2002). According to the Special Education Act of 1984, all the citizens have equal rights of education and work, so do the disabled. Because the mainstreaming concept in special education prevails in the educational arena, educators try to put retarded students in regular classes or at least in the regular learning environments (Conn, 2001). By this way, those retarded high school students can really strengthen their personal living ability, social life ability, and occupational ability (Ministry of Education, 2000).

To address these issues and support successful outcomes for students with mental retardation, it is important to understand their educational environment. For instance, what courses are students with mental retardation taking and in which instructional settings? Do students with mental retardation actively participate in their classes, and how does this participation vary by instructional settings? Ultimately, what are the academic outcomes of students with mental retardation?

The purpose of this study is to explore the Middle and Secondary Educational Experiences of students with mental retardation. Topics include the instructional practices in general, vocational, and non-vocational education classrooms, the participation of students in various classroom settings; accommodations and support services provided to students; how their experiences compare with those of their classmates, and how students with mental retardation perform academically and also identify and assess the Adaptive Skills in middle and secondary school mentally retarded students at Kodaikanal.

NEED AND SIGNIFICANCE OF THE STUDY

It is clear that number of children with Mental Retardation is indeed very significant in terms of enrollment rate and is alarming as well. The problem of educating these children deserves much more research effort, policy programming, development and administrative attention. By doing this, our country would not only acquit itself from a social obligation but also make an investment for a bright future not only for persons with Mental Retardation but for the society as well.

A review of research conducted in the areas of educational placements of these children with Mental Retardation, i.e., the special schools reveal that attempts have been made to understand the related concept of education and its strategies. In India not much research has been done in this area even today. Hence, an attempt has been made by the investigator to provide a situational analysis of this programme. Therefore, the concept of Adaptive Skills and Educational Experiences among Middle and Secondary Mentally Retarded students at Kodaikanal has been studied.

OBJECTIVES OF THE STUDY

- To determine the Educational Experiences of children with Mental Retardation.
- To assess the Adaptive Skills of School Students of children with Mental Retardation in Kodaikanal.
- To study the relationship among Adaptive Skills, Educational Experiences among Mentally Retarded Students at Kodaikanal.

SURVEY METHOD

The investigator has chosen survey method for this study. This helps the investigator to know the present conditions. It is used as a common approach in the research field. It involves interpretation, classification, elevation and applies all directed towards a proper understanding and solution of 50 school students and their teachers.

SAMPLES

The investigator collects the samples from Kodaikanal Schools in Kodaikanal Taluk and the findings are based on the data collected from school staff and also from direct assessments of academic achievement of children with mental retardation. The total sample of the students was 50 for the assessment of adaptive skills and educational experiences of mentally retarded children. The study revived the school staff who were knowledgeable about the students overall school programs and about their special and vocational education courses. The data offers a perspective on the secondary school experiences of students with mental retardation who received special education services through schools.

DESCRIPTION OF TOOLS

To collect data for the present study the investigator used the structured interview schedule for the teachers, consist of 22 questions, it reports on students with mental retardation as an overall group and stratified by the personal data like age, gender, onset of disability, etc., it deals with the family background, education of the parents, occupation of the parents, etc., another tool consists of 18 topics of question with sub-questions describes their experiences in general education, academic, vocational and non-vocational education classes. Each section provides the information about aspects of their educational experiences within that type of educational setting such as curriculum modification, types of instruction, student's active participation and teachers perceptions and expectations of students performance. Findings related to their

receipt of accommodation and support with focus on the academic achievement of students of mental retardation. The tools for adaptive skills consist of 20 questions reports the assessment of conceptual, social and practical skills for students' better living.

MAJOR FINDINGS OF THE STUDY

The following are the major findings on the basis of hypothesis framed under this research study:

- This Research study reveals that the boys were found to have representation at 52 percent and 42 percent representing a small group of mentally retarded students which is more or less equal among selected sample of the study.
- In the Onset of Disability distribution, Onset at birth of disability were found to have larger representation at 66 percent while it was compared with Onset of Disability within the occurrence of 2 years.
- In the age wise grouping of children in the age range below 10 years were found to have largest at 56 percent while it was 30 percent at 11-13 years and a sharp fall to 14 percent was observed in the higher age group 13 years and above.
- Analyzing in terms of the Level of Retardation, Severe were found to have maximum range than Mild and Moderate categories of Level of Mental Retardation.
- The majority of the parents were taking care of their child at 96 percent than the care taken by the Guardian and Relation were at 2 percent each.
- The mass of the professionals were identified the disability of the retarded children at 64 percent while only 22 percent were found by the relations and only 14 percent were identified the disability by parents.
- Regarding the mean scores of the overall Adaptive Skills of Mentally Retarded Students, it is observed that the urban areas (11.36) are superior to rural (7.33) in the sample. The test shows that the P value (.172) is greater than at 0.05 and 0.01 Levels of significance and hence it is insignificant. Consequently, the hypothesis is not to be rejected and it can be said that there is no significant relationship between urban and rural with respect to Adaptive Skills with respect to Mental Retarded students.
- The mean scores of Educational Experiences with regard to Type of Schools among the Mental Retarded students. It reveals that the Inclusive Education (43) have acquired better Adaptive skills and better Educational Experiences. On the contrary, those Mentally Retarded students who studying at Special School (35.87) is more or less equal to the Day Care Centre (35.89) at Kodaikanal. Thus the above ANOVA Table and Figure show that the P value (.000) is less than 0.01 levels of significance and hence it is significant. Consequently, the hypothesis is rejected and it can be said that there is significant relationship between Type of Schools and the adaptive skills combined with Educational Experiences among Mentally Retarded students.
- For the purpose of testing the hypothesis, the Analysis of Variance reveals that the P value (.000) is less than the 0.01 Level of Significance. The hypothesis is rejected at 1% Level

of Significance. Hence it is concluded that there is significant difference between Level of Retardation and the Adaptive Skills and Educational Experiences among Mental Retarded students.

- For the purpose of finding out the relationship between Educational Experiences and the Adaptive Skills with regard to Mentally Retarded students, Association analysis is applied in order to find the association between the variables. The results are tabulated and the interpretations are presented below.

Variables	Chi-Square	P Value
Educational Experiences	188.606*	.000**
Adaptive Skills		

*120 cells(100.0%) have expected count less than 5. The minimum expected count is 02.

** Denotes Significant at 1% level.

The above Chi-Square Table reveals that the P value (.000) is less than the 0.01 Level of Significance. The Hypothesis is rejected at 1 % Level of Significance. Hence it is concluded that there is association between Educational Experiences and the Adaptive Skills among Mentally Retarded students.

RECOMMENDATIONS FOR THE PRESENT STUDY

In the light of the findings that have emerged from the present study and the valuable experience gained, the following are the recommendations:

- Intervention strategies can be given to the Mental Retarded students to attain the Adaptive Skills and better Educational Experiences for the long run benefits in the Kodaikanal.
- The importance of obtaining Adaptive Skills and providing Educational Experiences should be given by the Government of India through SSA or other Schemes.
- Specific and General Instructions can be given to the Special and Regular Teachers in Different Types of schools about the Knowledge of Adaptive Skills and Educational Experiences.
- The General Education Program in Special schools and Regular schools need to be structured properly with all facilities and should be implemented effectively.
- The number of Schools should be increased by recruiting more number of special and resource teachers for easy access and education of children with Mental Retardation.

CONCLUSION

The purpose of the study explored Adaptive Skills and Educational Experiences of students with Mental Retardation. The Adaptive Skills and Educational Experiences differ

among Mentally Retarded students with regard to age, locality, type of school and level of retardation. The experiences are because of instructional practices in general, vocational and non-vocational special education classrooms, participation of students in various settings, educational support services are accessible and adaptive skill training are being provided to mental retarded students. Thus these findings reveal that there is a relationship between Adaptive Skills and Educational Experiences among Mental Retarded students at Kodaikanal. It may help the special educators to plan and implement the strategies to improve their adaptive skills.

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PARENTAL EXPECTATIONS ABOUT THEIR CHILD'S OUTCOME FROM COCHLEAR IMPLANT: A SURVEY

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ABSTRACT

The present study was undertaken to investigate the expectations of parents about their child's outcome from cochlear implant. The sample comprised of 51 parents of those children who undergone/undergoing cochlear implant. To assess the parental expectations a draft questionnaire was adopted and modified so as to suit the Indian context. Five areas of expectations; communication abilities, social skills, academic achievement, change in future life and post implant rehabilitation demands were taken into consideration in order to assess the expectations of parents.

Parents rated their expectations on a 5-point scale from strongly agree to strongly disagree. Analysis of results indicated that parental expectations regarding different areas of expectations about their child's outcome from cochlear implant fall in two categories, i.e., high and medium level of expectations with varying degree and not a single parent showed low level of expectations or almost no expectations. These findings indicate that to improve collaborative intervention with parents of children undergoing cochlear implantation it is important to have greater understanding of parental expectations regarding their child's outcome from cochlear implant.

INTRODUCTION

The common mode of linguistic communication that we use is aural-oral, i.e., through listening and speaking. Children who are born with severe to profound hearing impairment have greater difficulties in acquiring speech and language. However, it has been scientifically proved that early identification and subsequent early intervention through suitable amplification can help them to acquire speech and language to a great extent. Today various options of amplification are available for the persons with hearing impairment, so that they may develop better speech and language. However, for the persons who do not get optimum benefit with hearing aids, cochlear implantation proves as a suitable option.

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A cochlear implant is an artificial hearing device designed to produce useful hearing sensation by electrically stimulating nerves inside the inner ear. It is surgically implanted in the inner ear and activated by a device worn outside the ear. It is considered as one of the recent rehabilitation advancement and considering its outcome more and more parents want to do cochlear implant for their child with hearing impairment.

The cochlear implantation procedure includes decision making, surgery, and a demanding (re)habilitation process, all of which may create stress for parents. After taking decision to choose the cochlear implant as the sensory aid for their child parents deal with considerable anxiety and fear prior to and during surgery. Next, the parents have to decide on their child's educational placement and mode of communication and finally they committed to the extensive (re)habilitation process. Thus, the parental role does not end in the decision stage, as they are also asked to play a major and significant role (systematically and continuously) in post operative rehabilitation (Lloyd, 1994; Evans, 1989). Despite the many professionals involved in the rehabilitation and follow up care of these children, parents are from the beginning the strongest source of support for their children (Evans, 1989) and remain so, even if outcomes do not meet expectations. Additionally, as parents are the critical observers of any intervention of their child they are uniquely able to assess outcomes in real life rather than clinical situations.

OBJECTIVES OF THE STUDY

The purpose of the present research was to provide a comprehensive evaluation of parental expectations following cochlear implantation in diverse areas including: communication abilities, social skills, academic achievements, future change, and the post implant (re)habilitation demands. The specific objectives of the research therefore formulated as:

1. To find out the level of parental expectations about their child's outcome undergone/ undergoing cochlear implant regarding communication abilities, social skills, academic achievements and change in future life.
2. To find out the level of expectations regarding post-implant rehabilitation demands of the parents of children with hearing impairment undergone/undergoing cochlear implant.

In the present study "expectations of parents" represents their child's outcome from cochlear implantation in the areas of communication abilities, social skills, academic achievements and future progress in the life.

It is well known that good mutual relationships between families and professionals in early intervention are crucial for achieving both improved parental coping and involvement in the (re)habilitation as well as higher child's outcomes (Dromi & Ingber, 1999; Hadadian & Merbler, 1995; Minke & Scott, 1995). Parent's involvement in the child's therapy and educational program has been reported to enhance benefits from cochlear implants use and is essential to the child's linguistic development post-implant (Spencer, 2004; Bertram & Pad, 1995; Cohen & Waltzman, 1995). In fact, parents' participation in the child's (re)habilitation programme is considered by many multidisciplinary implant teams to be a prerequisite

for implant candidacy (Geers & Bernner, 2003). However, little attention has been paid in understanding parents' expectations about their child's outcome from cochlear implant.

Moller (2000) has reported that active family involvement in children's speech and language development, paired with early intervention, leads to higher linguistic attainment. The landmark study completed by Geers et al. (2003) reports excellent speech perception, speech production and language results in eight- and nine-year old children who had received their implants before the age of five. An experimental study clearly shows that speech perception and speech reading improve significantly after cochlear implantation (Tyler et al., 1997; Gantz et al., 1988). Tyler et al. (1997) argued that most gains in performance occur in the first 9-12 months of use of the cochlear implant. According to these authors, many patients continue to improve over the first 1.5 - 2.5 years and even longer, but it is unclear why some patients show improvements over many years whereas others appear to stabilize at an early stage. Hogan (1997) reported that in adult patients, the cochlear implant enhanced inter personal communication skills and social confidence. Downs and colleagues suggested that "unrealistic" expectations about cochlear implant may reduce parents' ability to internalize information that does not support their expectations.

The cochlear implantation process arouses many hopes and expectations among parents. Parental realistic expectations are often stated in the candidacy criteria lists of many cochlear implant medical centers. At the same time, neither clinical nor empirical criteria have yet been clearly defined for 'realistic expectations' on the part of parents considering cochlear implants for their children. Beadle et al. compared current parental expectations with parents' retrospective expectations prior to their child's surgery. Parental retrospective report of their expectations of the child's communication, speech, and education during the pre-implant period and their expectations at present did not correlate. These findings indicated that parents may change their expectations over time according to their experience with their own child. Anecdotal evidence provided by parents described a range of parental expectations following cochlear implantation, such as, acquiring speech and hearing, improved quality of life, greater social success, and more opportunities in the child's future (Chute and Nevins, 2000). According to Christiansen and Leigh (2000), 52% of participating parents reported that "ease in development of oral spoken language" is their main motivation for cochlear implant. In another study most parents (37%) mentioned the "desire to have a child who function as a hearing person as their main reason for choosing cochlear implant (Kluwin & Stewart, 2000). Parents' satisfaction with the cochlear implant depends on the parents' prior expectations (Meadow-Orlans, Mertens & Sass-Lehrer, 2003). In a recent survey, 67% of the parents reported that they were very satisfied with the cochlear implant results (Meadow-Orlans et al., 2003). Similarly, in another survey, 67% of the parents indicated that they were very satisfied with their child's cochlear implant progress, and 39% were very satisfied with their child's spoken language skills (Christiatnsen & Leigh, 2002).

METHODOLOGY

The research design of the present study was of 'survey' type with purposive and incidental sampling. Those parents were selected for the study that were bearing at least SSC (Xth) as

minimum educational qualification and directly involved in cochlear implantation as well as post implant rehabilitation of their child. It was also kept in mind that they should be comfortable either in English or in Hindi language. For selecting the parents as sample of the study it was necessary for them that their child should have congenital bilateral severe to profound sensori neural hearing loss and prepared for undergoing cochlear implantation or have undergone cochlear implantation with implant age not exceeding more than 1.5 years. The age range of the child should be 1 to 10 years with no history or presence of any associated disability. In case the child is being prepared for undergoing cochlear implantation parents must have undergone pre-implant training, on the other hand the child should undergo appropriate post-cochlear implant rehabilitation in case the child had undergone cochlear implantation.

DATA COLLECTION & ANALYSIS

The data was collected at a meeting of the parents of the children with hearing impairment who undergone/undergoing cochlear implant at the Kohinoor Hall in Mumbai, where parents from different parts of the country mainly from states of Maharashtra and a few from Kerala, Gujarat, Madhya Pradesh and Andhra Pradesh had come to participate in 2007.

The questions were adopted from the study of Zait and Most (2005) and were modified so as to suit the Indian context. The modified questionnaire was also translated into Hindi by experts with the help of researcher. The questionnaire was modified and finalized based on the response given by the judges. After collecting the questionnaire from them, tabulation was made for checking its validity. The questions, which were marked 80% as appropriate by judges, were selected for the final questionnaire as per the instructions/guidelines given by them. Thus only those questions were selected that were relevant and appropriate as per the objectives of the study. Hence total 38 questions were selected from different areas of expectations after final modification to conduct the study. A profile sheet was also prepared containing detailed information about children who undergone/undergoing cochlear implant along with demographic information of their parents. Parents were instructed to fill up their child's profile along with their demographic information and put appropriate tick (✓) marks to the best option given under each statement.

For getting appropriate answer, a five point rating scale from Strongly Agree (SA) to Strongly Disagree (SD) was used. The most correct answer was given the maximum score of 5 while the least correct answer was given the minimum score of 1. Scores were distributed in descending order from Strongly Agree to Strongly Disagree.

In order to collect the data the researcher personally met the parents. Nearly 80 sets of questionnaire covering the profile of cochlear implanted child along with demographic information of his/her parents were distributed with suitable instructions to all parents. Both parents were requested to fill up the questionnaire individually in case when both were actively involved in cochlear implantation and post implant rehabilitation of their child. Out of 80 sets only 59 dully filled questionnaire were received, however out of this 59 sets of questionnaire 8 were rejected due to incomplete and/or not fulfilling the criteria. Thus, finally 51 samples were taken into consideration for the present study. Out of 51 selected samples 46 were the parents

of whose children had undergone cochlear implant and remaining 5 were the parents whose children were still to undergo cochlear implantation. The collected data was analyzed by using standard statistical program, 'SPSS' and the results obtained were tabulated and compared as per the objectives of the present study.

Level of expectations was categorized into four levels on the basis of scores obtained which are depicted in Table 1.

Table 1: The measurable schemes of level of expectations

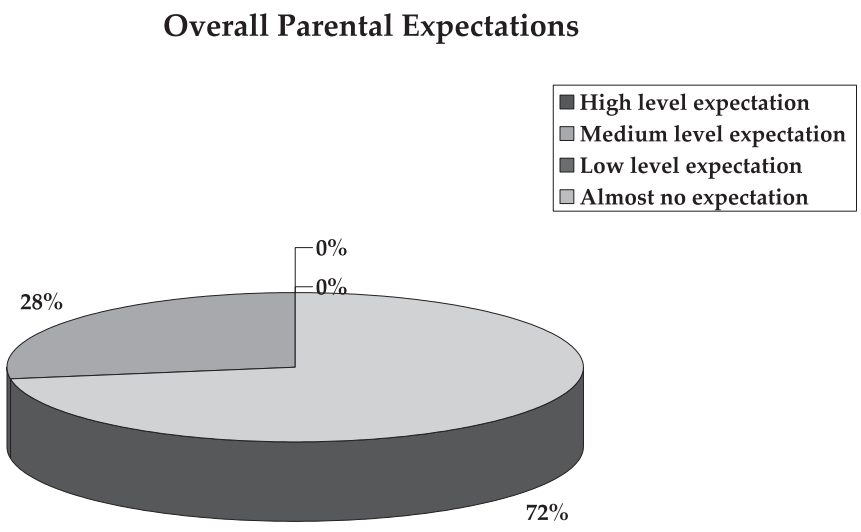
Scores	*Level of expectation*
81% and above	High expectations
61% to 80%	Medium expectations
41% to 60%	Low expectations
40 % and below	Almost no expectations

RESULTS

Since, the study was conducted on 51 parents out of which 21 were mothers (41.2%) and 30 were fathers (58.8%). Among children of selected parents 23 were girls (45.1%) and 28 were boys (54.9%).

In order to find the level of parental expectations about their child's outcome undergone/ undergoing cochlear implant, the total score covering all four areas of expectations were obtained from each parents which was then categorized into four different levels of expectations, i.e., high, medium, low and almost no expectations.

Pie Diagram 1: Showing the level of overall expectations of parents



Findings showed that 72.5% parents (n_1 = 37) fall in the category of high level of expectations while remaining 27.5% parents (n_2 = 14) fall in the category of medium level of expectations and not a single parent has low level of expectations or almost no expectations about their child's outcome undergone/undergoing cochlear implant. Thus the level of parental expectations about their child's outcome undergone/undergoing cochlear implant is ranged between high to medium level expectations.

In order to find out the level of parental expectations, total scores of each area of expectations (e.g. communication abilities, social skills, academic achievements and change in future life) was obtained separately from each parents which was categorized in four different levels of expectations, i.e., high, medium, low, almost no expectations. The same is depicted in Table 2.

Table 2: Showing the level of parental expectations from different areas of expectations

Level of expectations / *Areas of expectations*		*81% & above*	*61% to 80%*	*41% to 60%*	*40% & below*	*Total*
Communicationabilities score	(n)	30	21	0	0	51
	(In %)	59	41	0	0	100%
Social skills score	(n)	26	25	0	0	51
	(In %)	51	49	0	0	100%
Academic achievements score	(n)	25	26	0	0	51
	(In %)	49	51	0	0	100%
Change in future life score	(n)	35	16	0	0	51
	(In %)	68.6	31.4	0	0	100%
Rehabilitation demands score	(n)	30	21	0	0	51
	(In %)	59	41	0	0	100%

Findings showed that 59% parents (n_1 = 30) falling in the category of high level of expectations while remaining 41% parents (n_2 = 21) fall in the category of medium level of expectations regarding communication abilities about their child's outcome undergone/ undergoing cochlear implant. Similarly, 51% parents (n_1 = 26), 49% parents (n_1 = 25) and 68.6% parents (n_1 = 35) falling in the category of high level of expectations respectively regarding social skills, academic achievements and change in future life of their child while remaining 49% parents (n_2 = 25), 51% parents (n_2 = 26) and 31.4% parents (n_2 = 16) fall in the category of medium level of expectations respectively regarding social skills, academic achievements and change in future life of their child about their child's outcome undergone/ undergoing cochlear implant. Finally results showed that, 59% parents (n_1 = 30) have high level of expectations while remaining 41% parents (n_2 = 21) have medium level of expectations regarding post implant rehabilitation demands for their child undergone/undergoing cochlear implant.

DISCUSSION

The present study investigated the level of parental expectations about their child's outcome from cochlear implant. Specially, we examined the level of parental expectations with regard to the different domains of their child's development (i.e., communication abilities, social skills, academic achievements, change in future life), including their expectations for post implant rehabilitation demands for their children with hearing impairment undergone/ undergoing cochlear implant. The findings indicated that the level of parental expectations about their child's outcome following cochlear implant is ranged from high to medium level expectations with varying degree and not a single parent has low level of expectations or almost no expectations. The possible explanation for the above findings may depend upon the various factors like education of the parents, age of the child, age at the time of cochlear implantation and state of additional disability with the child.

In the present study the minimum educational status of the parents were SSC (Xth) passed and above, which in Indian context may be viewed as 'literate' parents. As a result they may be expected to have medium to high level of expectations, as compared to their illiterate counterparts. Similarly in the present study the majority of children who have undergone cochlear implant fall in the age range of 2 to 8 years, which is considered as more or less critical age for various aspect of development, so it may be another contributing factor for the above findings. The last but not the least may be the state of child with the additional disabilities as not a single child in the present study had additional disability. Hence it may be another contributing factor for medium to high level of expectations of parents about their child's outcome undergone/undergoing cochlear implant.

Also, various researches have shown that some factors like present age of the child, age of the time at cochlear implantation, length of the time using the cochlear implant, etc., do influence children's post implant outcomes regarding both the perception and production of spoken language (Balmey, 1995; Dowell, Blamey, & Clark, 1997; Mondain et al., 1997; Cheng, Grant, & Niparko, 1999; Barco, Franz, & Jackson, 2002; Spencer 2004).

Parents tended to agree that their child's communication abilities would improve, including speech perception and speech production. They expected their child would be able to use the telephone, understand speech without relying lip-reading, follow a group conversation and so on. In addition, parents tended to expect that the child would experience better social interactions with their peers with typical hearing and would attain higher academic achievements than would have not been possible without the cochlear implant. Moreover, parents felt that if their child attained better communication abilities, he/she would also obtain better academic achievements and social relationship with their peers with typical hearing that finally leads to change in their future life.

Similar findings were reported by Zait and Most (2005) who examined the expectations of 35 mothers with typical hearing and their beliefs and difficulties related to their child's hearing loss and current or future cochlear implantation. They found that mothers expressed relatively high expectations from their child's outcome following cochlear implantations as well as an understanding of the demanding nature of the (re)habilitation process.

In conclusion, the researcher wants to say that the level of parental expectations about their child's outcome following cochlear implant ranges from high to medium level of expectations with varying degree and not a single parent has low level of expectations or almost no expectations. Since, parents' satisfaction with the cochlear implant depends on the parents' prior expectations (Meadow-Orlans, Mertens & Sass-Lehrer, 2000). So, professionals should continue to disseminate up-to-date, research-based knowledge on the efficacy of cochlear implants and focus on parental expectations concerning the demanding post-implant rehabilitation process. Also, for professionals to improve collaborative intervention with parents of children undergoing cochlear implantation, it is important to have greater understanding of parental expectations regarding their child's outcome from cochlear implant.

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SELF-CONCEPT OF HEARING IMPAIRED AND NON-DISABLED STUDENTS

Dr. Mohd. Ansar Alam[1]

ABSTRACT

A total of 88 students, 44 Hearing impaired and 44 Non-disabled students were randomly selected from an educational institution of South Delhi. Half of the hearing impaired and non-disabled students were male and half were female. They were administered Mohsin's (1979) self-concept inventory (MSCI). ANOVA revealed significant effect of hearing status but non-significant effect of sex on self-concept was obtained. It means that the findings of ANOVA and Regression analysis are similar. The hearing status emerged as the significant contributor to self-concept, but sex did not emerged as the significant contributor to the self-concept. The hearing status and sex had 12% variance in self-concept.

INTRODUCTION

There is a growing concern for the child with hearing impairment. In every country, there is awareness of both the existence and the needs of intelligent children with hearing impairment. Educational authorities are also been made aware of the crux of the problem. The study of hearing is not new but it is one of the most controversial heterogeneous, dynamic and significant areas in special education.

The National Policy on Education – 1986 in the section on "Education for Equality" has emphasized the need for education for the disabled children. A study conducted by Indian Council of Medical Research estimated 6.8 % people in urban areas and 10.8% in rural areas had significant hearing losses. The prevalence rates of hearing disability rise with increasing after the age of 15-39 years in both the rural and urban sectors due to growing global population. The hearing loss is a continuum ranging from mild to severe and profound loss because in developing countries fewer than 1 in 40 people can benefit from a hearing aid and the current annual production of hearing aids is estimated to meet less than 10% of global need (WHO). Hearing impairment can be congenital or acquired at any stage of life or can be inherited if one or both parents have same problem. According to 2005 estimates by the World Health Organization, 278 million people worldwide have moderate to profound hearing loss in both ears.

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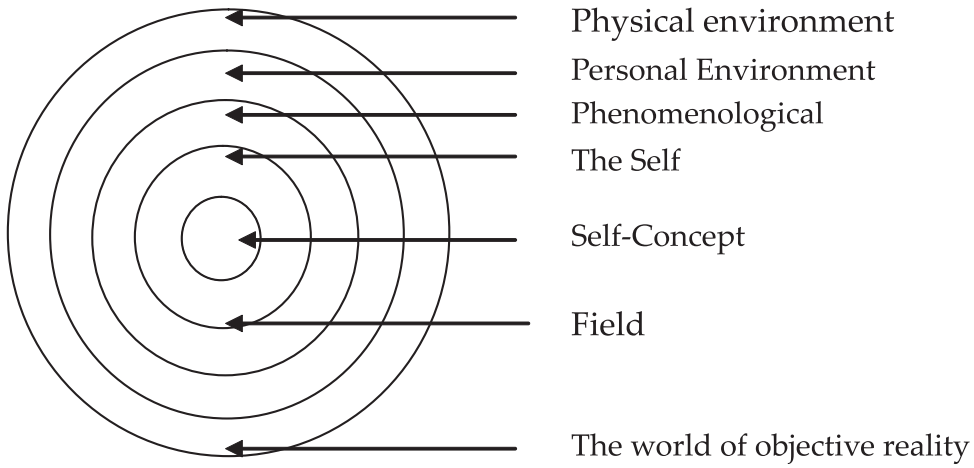
Hearing impairment and deafness are serious disabilities that can impose heavy social and economic burden on individuals, families, communities and countries. Children with hearing impairment often experience delayed development of speech, language and cognitive skills, though they are not slow learners. Hearing impairment may result in slow learning and difficulty progressing in school. They show normal performance like non-disabled students. The hearing impaired students though might possess similar thinking and intelligence processes but it is not necessary that they might have same academic achievement level. Their disability makes it difficult to obtain and perform comparatively with their non-disabled peers. Hence may suffer from social stigmatization and isolation that affect on their self concept. They might have lesser extent of interaction with peers and others because of their social communication skills.

Hearing loss around 40 db is known as hard of hearing. The hard of hearing cases are those for whom the hearing although defective, is functioning with or without a hearing aid. Though their defects and difficulties are considerable, nevertheless they learn to speak essentially through the avenue of hearing.

The self-concept originally was proposed by Leekey (1945) and adopted by Roger (1961) as the keystone of his system of non-directive counselling. This concept has major importance in education, particularly in the more personal aspect of motivation, attitudes, character formation and adjustment. The self-concept is best conceived as a system of attitudes towards one self.

According to some Humanistic Psychologist (Combs and Snygg, 1959) every person inhabitants two worlds: Public world of objective reality or the physical environment, and subjective private world or the personal or psychological world. The self-concept is the result of the interaction of the individual and the two worlds as shown in the following figure:



(A perception view of the self and its environment)

The self-concept develops progressively with the chronological development of the child and that it is immensely influenced by the familial, socio-cultural background and many other factors. The physical impairment as an experiential condition seems to be a participating factor for the development of self concept. Albiet the studies of Khan, Hasnain and Alam (1997)

demonstrated an insignificant difference between the inferiority feeling of hearing impaired and non-disabled students.

Since self-concept is a developmental process and is developed out of the bio-social interaction and experiences gained by the individual, it will influence and will be influenced by a number of socio-psychological factors, like socio-cultural factors of the society, community, background and school and college environment, etc.

Hodgkins and Stakenas (1969) found the average self-concept of Negro students and significantly to surpass that of white students in a study involving subjects from segregated environments. However, they noted that this significant difference was lost when differences in socio-economic class were taken into account. Hunt and Hardt (1969) found the average self-concept of Negro students to be higher than that of white students both before and after participation in upward bound programmes. Zirket and Moses (1971) found the self-concepts of Negro fifth and sixth-graders to surpass, although not significantly to those of white children in the same classes.

Olown (1985) investigated the effect of culture on the self-concept of 314 English (174 male and 140 female) and 372 Nigerian (264 male and 108 female) 14-17 year old. Results indicate a significant interaction between sex and culture. Nigerian males had significantly more positive self-concept than Nigerian females. The differences between English males and females was not as wide but tended toward significance.

Sexena (1979) is of the opinion that the child's identity and self-evaluation are shaped by the home and educational institution. He has also discussed the role of the educational institution, which provides abundant learning opportunities to the students.

Ameerjan and Thimmappa (1982) obtained that scheduled caste and tribe college students have lower economic values but higher religious values than other caste group. But schedule caste and tribe subjects do not differ from each other in any respect of their perceived self-ideal and self-confidence. Karna and Panjiar (1983) obtained in their study that Harijans and the most despised group had the lowest self-esteem.

Srivastava (1979) found that self-concept in urban residents is slightly better than in rural residents. Moreover, studies show that family break-ups due to the death or divorce are traumatic for every member of the family. The self-concepts of the children are damaged and patterns of life are inevitable upset in such situations (Goode, 1964; Harmon, 1959, and Landis, 1963).

Silverman (1978) found that there were no significant differences among urban sub-urban and rural learning disabled group on the total and self-concept scores. The urban disabled and urban non-disabled groups were significantly higher than the normal group. Mc Gough (1978) found in a comparative study that there was no significant difference between non-disadvantaged and disadvantaged students when the self-concept was measured by TSCS.

Reeder (1955) found that children achieve lower in terms of their potential if they have a low-concept. Stainley (1967) reported that a low self-concept is associated with high

achievement when high achievement discipline, students self-concept and parental attitude. In achievement variables, fundamental school rated better on learning climate, discipline and superstition. The self-concept of students in both types of school was about the same. No evidence was found to support a recommendation that the fundamental school be discontinued.

The studies reveal that there exists a curvilinear relationship between self-concept and academic achievement (Deo and Sharma, 1970) a positive relationship between self-concept and academic achievement (Payne, 1962, Farquhar, 1963, Stone, 1962, Shivappa, 1969 and Vasanatha, 1972) and negative relationship between self-concept and academic achievement (Shivappa, 1969).

Many investigators such as Kurtz and Swenson, 1995, Nason, 1958, Davidson and Lang, 1960; Shaw, Edson and Bell, 1962, Richards, Cline and Abe, 1963; Coperasmith, 1967; Vasantha, 1974; Wylie, 1974; and Brookover, Patterson and Thomas, 1982 found a positive relationship between self-concept and achievement of secondary school students. It was found that high achievers in school passes a feeling of adequate. In these studies some investigators found relatively low correlations between self concept and achievement, others found fairly high correlations comparable with the correlations between aptitude test and academic achievement. Smith (1932) found that "inferiority feeling" was as common among students with high ability as among students with low ability at adolescent level. Spicack (1956) found that there was a zero correlation between academic achievement and self-acceptance at high school level.

Panwar (1985) conducted a study on the low average and high academic achievers of provincial private and public schools and found significant effects of school backgrounds and achievement on self-concept. However an insignificant interactional effect of the two on self-concept was obtained. Khatoon (1990) also obtained significant difference between the mean self-concept scores of Hindu college & Muslim college girls, and also between the mean self-concept scores of Hindu uneducated and Muslim uneducated. She discussed these results in terms of differences in cultural practices in two socio-religious groups.

The above discussion shows that many variables influence the development of self-concept of the individuals. Among them social and cultural variables are pertinent. However, the experiential feeling of the individual which he receives from the society in general class-mates and teachers and also the difficulties faced by him in particular may play important roles in the development of self concept. Therefore, in the present research work systematic efforts have been made to compare the self-concept of learning disabled boys and girls with that of non-disabled boys and girls.

NEED FOR THE STUDY

In the light of the available literature that the area of special education is neglected. The country may face high disability rate. A study conducted by Indian Council of Medical Research estimated 6.8% people in urban areas and 10.8% in rural areas had significant hearing losses. There is a great dearth of proper statistical data to show the increasing evidence of hearing impairment among peoples and its implications.

The self concept is of major importance in education, particularly in the more personal aspects of motivation, attitudes, character formation and adjustment. The self-concept is best conceived as a system of attitudes towards one self.

It is concluded that the self-concept develops progressively with the chronological development of the child and that it is immensely influenced by the familial, socio-cultural background and many other factors. The physical impairment as an experiential condition seems to be a participating factor for the development of self-concept. In this study, it was, therefore planned to study and compare the self-concept of hearing impaired boys and girls with that of non-disabled boys and girls.

OBJECTIVES

1. To examine the difference between the self-concept of hearing impaired and non-disabled students.
2. To study the difference between the self-concept of hearing impaired boys and girls.
3. To find out the interactional effect of type of students and sex on self-concept.
4. To study the difference between the self-concept of hearing impaired and non-disabled boys.
5. To study the difference between the self-concept of hearing impaired and non-disabled girls.
6. To find out the difference between the self-concept of hearing impaired boys and girls.
7. To study the difference between the self-concept of non-disabled boys and girls.
8. To find out the contribution of the sex and hearing status in self concept.

HYPOTHESIS

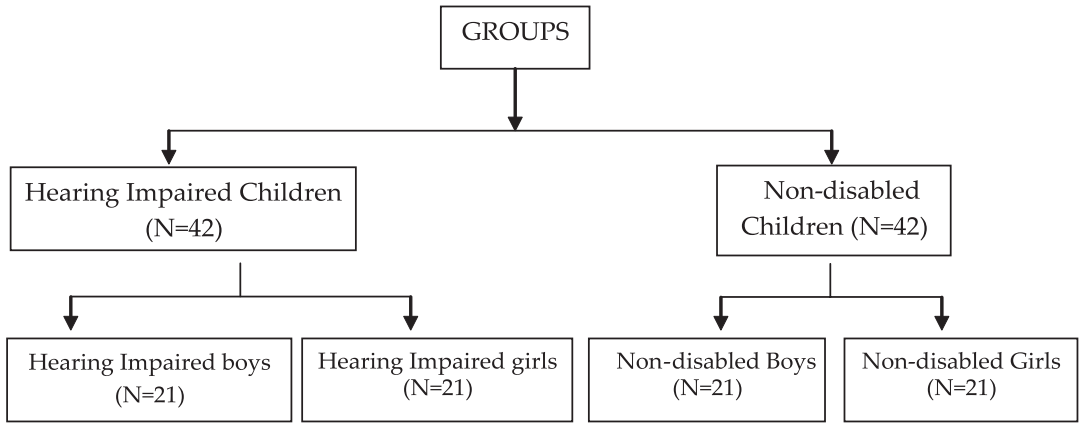
1. There will be significant difference between the self-concept of hearing impaired and non-disabled students.
2. There will be significant difference between the self-concept of hearing impaired boys and girls.
3. There will be significant interactional effect of type students and sex on self-concept.
4. There will be significant difference between the self-concept of hearing impaired and non-disabled boys.
5. There will be significant difference between the self-concept of hearing impaired and non-disabled girls.
6. There will be significant difference between the self-concept of hearing impaired boys and girls.
7. There will be significant difference between the self-concept of non-disabled boys and girls.
8. There will be significant contribution of hearing status and sex in self-concept.

METHODOLOGY

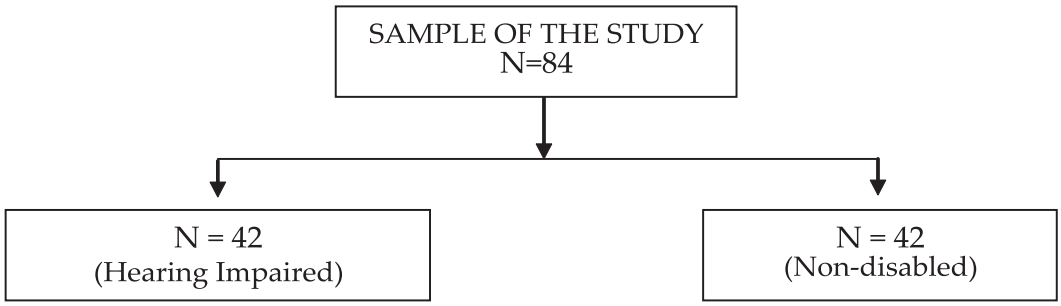
Design of the Study

In this study two groups hearing impaired children and non-disabled hearing children and two sexes' boys and girls were taken into a 2 x 2 factorial design.

Thus, the design of the study may diagrammatically be sketched as below:



The study consisted of 84 students of Balwant Rai Mehta Vidya Bhawan, Greater Kailash, New Delhi. Among them 42 Hearing Impaired and 42 Normal students from VI to VIII class were randomly selected to control the local variations.



MEASURING INSTRUMENT

Mohsin's (1979) Self-Concept Inventory (MSCI) was used to measure the self-concept of the subjects. Mohsin's self-concept inventory (1979) consists of 48 items selected out of a total of 70 items consisting of positively or negatively phrased statements about abilities and strengths pertaining to the cognitive, affective and conative areas. The positively and negatively are equally balanced in number.

RESULT AND DISCUSSIONS

Table 1: Mean Self-Concept scores of four groups of subjects

Groups	*Boys*	*Girls*	*Mean of Means*
Hearing Impaired	27.19	27.38	27.29
Non-disabled	31.76	31.43	31.60
Mean of Means	29.48	29.41	29.45

Table 1 shows that mean self-concept score of hearing impaired subjects was obtained to be 27.29 and that of non-disabled subjects was 31.60 F-ratio for hearing subjects was found significant. It can be said that hearing impaired subjects have significantly inferior self-concept than non-disabled subjects.

A cursory look over Table 1 shows that both boys and girls had obtained almost equal mean self-concept scores (Boys' M=29.48 and Girls' M=29.41). Contrary to the findings of academic achievement where boys were found be better than girls, they were not found better in self-concept than their counterpart girls. It means that both boys and girls as discussed earlier though may receive differential treatment in their socialization process but so far as the self-concept as a developmental and social learning process is concerned, it does not seem to be influenced by the differential treatment meted to boys and girls. This is a healthy trend with regard to the learning of differential role for two sexes as most of the times successful life as males or females depends on the successful execution of their differential roles. But self-concept being the core interactive process influences the whole personality of the individual which remains same in boys and girls. Seeing these findings of the study in this way refute the findings of Olown (1985) who found significant difference between self-concept of Nigerian males and females and English males and females.

Table 2: Results of ANOVA of Self-concept

Source of Variation	*Sum of Square*	*Df*	*Mean Square*	*F. value*	*Sign. of F*
Hearing Status	390.012	1	390.012	11.42	0.01
Sex	0.107	1	0.107	0.003	N.S.
Hearing status x Sex	1.440	1	1.440	0.042	N.S.
Explained	391.560	3	130.520	3.82	
Residual	2733.143	80	34.164		
Total	*3124.702*	*83*	*37.647*		

A perusal of Table 2 shows that F-ratio for hearing status was found to be significant beyond 0.01 level of confidence (F=11.42; < 0.01). It means that hearing impaired subjects differed significantly from normal subjects. Thus hypothesis 1 was confirmed.

It should be reiterated that self-concept is an organized cognitive structure which is derived from ons's experience of one's own self (Mcdavid and Harari, 1986). It is the individual perception of bio-social interaction (Anastasi, 1964, and Drownfain, 1952). It is the result of interaction with others in the family and in the society which seems as a looking glass (Cooly, 1902) reflecting the attitude of others towards oneself. The attitude of others towards oneself enables oneself to develop one's own attitude towards oneself (Scored and Backmay, 1974). These notions hint that the hearing impaired subjects do not have that much healthy attitude towards themselves as the non-disabled subjects have. It seems that the difficulty in hearing brings to the child a kind of difficulty which brings hindrances in the normal interactions with others making him feel himself as inferior in his/her eyes. This is confirmed by the students of Karna and Panjiar (1983) that Harijans and the most deprive groups had lowest self-esteem. Nonetheless, it is important to mention that Khan et. al. (1997) found non-significant difference between the inferiority feeling of impaired and non-disabled students. It seems that hearing impairment does not develop general inferiority in the individuals but it seems to effect the individual's cognitive structure derived from his experiences about himself. This is however, detrimental for the development of healthy views of hearing impaired for themselves may cause harm to their self-esteem and self respect.

Table 2 depicts a non-significant F-ratio for sex (F = 0.003; > 0.05). It means that boys and girls do not differ significantly in their self-concept, thus hypotheses 2 was rejected by the finding of the study.

A perusal of Table 2 shows that F-ratio for the interaction effect of hearing status and sex was found to be non-significant (F=0.042; > 0.05). It, thus, refuted the hypothesis 3. The findings suggest that hearing impairment is impairment for both sexes and has equal effect on both boys and girls. So hearing impaired person suffers from physical and psychological hardship not because it is boy or girl but because it is impaired alone. So the differences in self-concept comes solely because of hearing impairment.

Table 3: Mean self-concept scores of hearing impaired boys and non-disabled boys; their SDs, SED and t-ratio

Groups	*N*	*M*	*SD*	*SED*	*t*	*Level of Significance*
Hearing impaired boys	21	27.19	4.42	1.73	2.64	0.05
Non-disabled boys	21	31.76	6.55			

Table 4: Mean self-concept scores of hearing impaired and non-disabled girls; their SDs, SED and t-ratio

Groups	*N*	*M*	*SD*	*SED*	*t*	*Level of Significance*
Hearing impaired girls	21	27.38	6.24	1.074	3.76	0.01
Non-disabled girls	21	31.43	5.93			

A cursory look over Tables 3 and 4 reveals that t-ratio between mean self-concept scores of hearing impaired boys and non-disabled boys; and hearing impaired girls and non-disabled girls came to be significant (t=2.64; <0.05 and t=3.76; <0.01 respectively). Thus, hypotheses 4 and 5 were confirmed by the findings of the study. It is important to note that in both the cases the hearing impaired aspects had come out with significantly poorer self-concept than their counterparts. Hearing difficulty seem to add the difficulty of low poor self-concept.

Table 5: Mean self-concept of hearing impaired boys and girls; their SDs, SED and t-ratio

Groups	*N*	*M*	*SD*	*SED*	*t*	*Level of Significance*
Hearing impaired girls	21	27.19	4.42	1.01	1.19	N.S.
Non-disabled girls	21	27.38	6.24			

A perusal of Table 5 shows that t-ratio between the mean self-concept scores of hearing impaired boys and hearing impaired girls did not emerge as significant (t=1.19; > 0.05). Thus, hypothesis 6 was rejected by the finding of the study.

Table 6: Mean self-concept scores of non-disabled boys and girls; their SDs, SED and t-ratio

Groups	*N*	*M*	*SD*	*SED*	*t*	*Level of Significance*
Non-disabled boys	21	31.76	6.56	1.089	0.31	N.S.
Non-disabled girls	21	31.43	5.93			

In the same way Table 6 reveals non-significant t-ratio between the mean self-concept scores of non-disabled boys and girls (t=0.31; > 0.05). Thus, hypothesis 7 was not confirmed by the findings of the study.

If we pay attention to Tables 5 and 6 we shall see that hearing impaired boys and girls have almost equal mean self-concept scores (M=27.19 and 27.38 respectively). So, hearing impairment seems to be causing equal detrimental effect to the self-concept of both boys and girls. So in terms of self-concept as psychological product there does not seem to be any gender bias. In both the cases it is inferior and inferior not because one is boy or girl but because one suffers from disadvantage of hearing impairment.

Table 7: Determinant of Self-Concept

Independent Variable	*Dependent variable = Self-Concept*		
	Beta	*Simple r*	*t. value*
Hearing Status	- 0.35 **	- 0.35 **	3.399
Sex	0.003	0.01	0.056
Multiple R = 0.35			
R square = 0.12			

** Significant at 0.01 level.

Table 7 reveals Beta value for hearing status as -0.35 which was significant at 0.01 level of significance. It means that hearing status has a significant contribution to self-concept. However, sex has emerged as non-significant contributor for self-concept as Beta for sex was obtained to be 0.003 which was not significant at 0.05 level of confidence. The coefficient of correlation between self-concept and hearing status came to be –0.35 which was significant at 0.01 level of confidence. However, the coefficient of correlation between self-concept and sex came to be 0.01 which was not significant at 0.05 level of significance. The value of R came out to be 0.12. it means that hearing status and sex have 12 percent variance contributed to self-concept.

A look over Table 7 shows that again hearing status emerged as the significant contributor to self-concept, but sex did not emerged as the significant contributor to the self-concept. Thus, hypothesis 8 was partially approved and partially disapproved by the findings of the study.

If we have a perusal over ANOVA Table 2 we shall see there also a significant effect of hearing status but non-significant effect of sex on self-concept was obtained. It means that the findings of ANOVA and regression analysis are similar. This is further confirmed by the negative significant coefficient of correlations between hearing status and self-concept and non-significant coefficient of correlations between sex and self-concept meaning thereby that hearing impaired subjects have non-significantly inferior self-concept than their non-disabled counterpart by females did not recede to their counterpart male subjects. The reasons for these relations and differences have already been discussed while discussing the results of ANOVA Table 2. However, the combined contributions of hearing status and sex to self-concept came to be 12% in which the significant contribution is that of hearing status and only a very minor contribution is that of sex.

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NEW TRENDS IN DEAF EDUCATION : BILINGUALISM AND SECOND LANGUAGE LEARNING

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ABSTRACT

"Researches have shown that Sign Language does not prevent the Deaf child from learning to speak. If the child acquires early Sign Language ability and is then taught to read and write a spoken/written language, they master the ability to speak much better. Therefore no bilingual programme is against speech training but embraces it."

If deaf children get sign language stimulation from parents, other Deaf children and Deaf adults from the earliest possible age, they will acquire Sign Language as their first language in a manner equivalent to that in which a hearing child acquires a first spoken language.

A good command of the first language is crucial to success with the second language because second language learners use their first language as a point of reference in the acquisition of a second language.

INTRODUCTION

The bilingual approach is now gradually becoming one of the teaching methods for Deaf children. Bilingualism is based on the assets of Deaf children. In this approach, Sign Language and the spoken/written languages are kept separate in use and in the curriculum because they are indeed two completely different languages (Mayer & Wells, 1996). Sign Language is respected as the first language of Deaf people and is also used as the language of instruction. All efforts first aim at the Deaf child learning his/her first language (Sign Language) in a natural way. If deaf children get sign language stimulation from parents, other Deaf children and Deaf adults from the earliest possible age; they will acquire Sign Language as their first language in a manner equivalent to that in which a hearing child acquires a first spoken language. A good command of the first language is crucial to success with the second language because second language learners use their first language as a point of reference in the acquisition of a second language — this is also the case in hearing children.

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BILINGUALS AS INDIVIDUALS

It is estimated that approximately two-thirds of the world is bilingual. Some hearing children become bilingual from birth, being raised to speak two languages from the beginning (simultaneous bilingualism). For example, one parent may speak one language to the child, the other parent a different language. Thus, hearing children may have two languages as their first language. While for many deaf people this has been encouraged, sequential bilingualism may in many cases be more appropriate, with initial learning to sign being followed by literacy (and sometimes oracy) in another language. (Hoffmesiter & Wilbur, 1980)

It is very rare for bilinguals to have equal competence in both their languages. The idea of full or balanced bilingualism is an idealized concept that bears little resemblance to the reality of bilinguals. Generally, bilinguals use their two languages for different purposes, for different functions, in different contexts and domains. For example, a hearing person may use a minority language at home, in the Mosque, Temple or Church and with friends in the community and speak English in shops, public meetings, when watching television and when involved with other aspects of the mass media. When a minority language has little or no separate use and function, there will be a transition and shift to the majority language. Having competence in a language (e.g., in signing) does not mean that the language will thrive or even survive within an individual. People need to have positive attitudes to maintaining their languages and positive attitudes to the value and purpose of their language.

BILINGUALS IN COMMUNITIES AND SOCIETY

Bilinguals tend to exist not independently or separately but in groups and language communities. All languages and cultures have their own personality. For the same reasons Sign Language can be supported not only as the natural language of deaf people, but also because of its history and heritage, its culture and attractive variety that make for a more colourful language garden of the world. Sign Language encompasses and creates the culture, personality, vitality and shared understandings of the deaf community, and therefore needs preservation and conservation, production and reproduction. (Lynas, 1995)

THE POTENTIAL ADVANTAGES OF BILINGUALISM

Particularly important advantage for bilinguals is the raising of their self-esteem and greater security in self-identity if their minority language is recognized. When there is acceptance and celebration of signing as the first language of deaf people, self-esteem and self-identity may be supported, secured and strengthened, with positive consequences for achievement within the curriculum and outside. (Lindahl and Anderson,1990)

BILINGUAL EDUCATION: MODELS

There are two major models of bilingual education. One major model is the 'Deficit model', where children are not allowed to use their home language in school or are allowed to do so for only about 1 or 2 years. One example of the deficit model is called 'submersion', from the fact that children with a minority language are submersed immediately in the majority language

of the school. Another example of the deficit model is 'transitional' bilingual education, where children are allowed to splash around in their home language for 2 or 3 years until that language is replaced by the majority language. (Roberts, 1995)

Another model is 'Enrichment model' of bilingual education; in this model children are allowed to use their minority language for as long as practically possible. The majority language may be introduced when the child is about 7 or 8 years old. The reason for the child achieving success may be for the fact that the school accepts and builds upon the linguistic and intellectual resources the child owns when moving from home to school. Also, and importantly, ideas, concepts and knowledge developed in the first language transfer easily to the second language. (Grosiean, 2001; Power et al, 1998).

The enrichment bilingual education model for deaf children (Roberts 1995)

An enrichment bilingual education model for deaf children can be centered on 10 basic ideas:

- Natural Sign Language should be the first language of all deaf children and should be regarded as their primary language.
- Sign Language should be used to teach curriculum subjects such as Science, Humanities, Social Studies and Mathematics.
- Sign Language can be used to teach English or another majority language as a second language. This will often be to teach reading and writing skills rather than oracy.
- The culture and language of the deaf community is recognized and validated, with deaf children realizing their natural identity.
- This model of bilingual education for deaf children is partly based on research and arguments for an enrichment form of bilingual education for hearing children, considered above, which may be summarized as follows:
  1. The model builds on a child's existing linguistic and intellectual's resources.
  2. Concepts and knowledge developed in the first language transfer easily to the second language.
  3. Use of their heritage language gives children pride and confidence in their culture and community.
  4. Children's self-esteem and self-identity are boosted and not threatened by use of their first language.
  5. School performance and curriculum attainment are raised when the first language is celebrated rather than devalued.
- Deaf children may not always acquire a spoken language easily or quickly, as they have limited hearing abilities. If the curriculum is transmitted by the spoken word, they are expected to learn the content of the curriculum using a level of language not yet acquired.
- The acquisition of a Sign Language should begin as early as possible, ideally soon after birth. Current thinking tends to suggest that early exposure to Sign Language is

appropriate for all deaf children, since this gives them the opportunity to develop age-appropriate competence in a first language (e.g. Sign Language). When deaf children have had the opportunity to develop Sign Language competence during their pre-school years, they arrive in school ready to cope with the curriculum and able to socialize with others.

- It is important that hearing parents receive adequate support from Sign Language teachers and that there be good pre-school provision for deaf children. Parents of deaf children need to have knowledge about deaf communities and bilingual education for deaf children. They should expect their child's curriculum achievement to be enhanced by both the use of Sign Language as the medium of curriculum delivery and access to literacy in the majority language.
- The supply of trained staff in bilingual education for deaf pupils, staff for pre-service teacher training programmes, Sign Language teaching resources (e.g., videos of signed stories), in-service education, certification and funding are current problems faced by education of the of deaf children.
- The teaching situation in a bilingual programme for deaf pupils may involve team teaching. A deaf teacher may be a natural model for the acquisition of Sign Language, while a hearing teacher may act as a model for the acquisition of proficiency. Both teachers in the team should have knowledge of the culture of deaf people of differences among deaf people, and of all the possibilities for deaf children and adults.

Some main aspects of the bilingual approach :

1. The child develops proper linguistic skills in Sign Language in a natural way.
2. A spoken/written language is introduced as a separate language.
3. Common texts written for children are used as the basis for second language learning.
4. Through translation in Sign Language and explanations of parts of the texts, the teacher highlights similarities and differences between written language and Sign Language.
5. The child gradually develops knowledge about written language forms and learns to read.
6. Knowledge about written language is also used for learning how to write.
7. Individualized speech training follows based on each child's aptitude and interest.

Some results in children who have followed the bilingual approach:

(Koutsoubou, et al, 2006; Hansen, 1991; Bouvet, 1990)

1. They attain a reading level equal to that of hearing peers.
2. They attain a writing ability equal to that of hearing peers.
3. They still make grammatical errors in their writing (understandable because it is their second language).
4. They can use writing to express themselves fluently and intelligibly.
5. They develop a better self-esteem and become fully developed individuals.

6. Third and even fourth language learning is possible because their first language is fully developed.
7. The possibility to follow the regular curriculum and reach the same attainment levels as their hearing peers.

CONCLUSION

The Sign Language does not prevent the Deaf child from learning to speak. If the children first acquire Sign Language ability and are then taught to read and write a spoken/written language, they master the ability to speak much better. Therefore no bilingual programme is against speech training.

This approach implies full access to both languages, in order for both to be acquired at a high level of competency. Sign Language and a spoken/written language offered as two separate languages provide an accessible education system to all Deaf children and lead to attainment levels equal to that of hearing children.

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THE 'HEARING AID EFFECT' IN INDIA: A REALITY CHECK ON THE MUMBAI POPULATION

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ABSTRACT

Hearing aids enhance quality of life. However, their acceptance by individuals with hearing impairment seems poor. One possible reason is the 'hearing aid effect' (HAE), i.e., negative attitudes of other individuals towards a person with a hearing aid. The present study investigated the extent of the HAE in Mumbai; and the ability to identify hearing aids across gender and socioeconomic status (SES). A College students' Attitudes towards Loss of Hearing Questionnaire (C-ALHQ), photographs of two individuals with hearing impairment and three linear analog scales were used. Results revealed that 93.46% people reacted considerately, 60.92% always noticed a hearing aid, 35.34 % associated hearing aids with slowness of thought and 27.38% with senility, but only 11.25% with stupidity. The higher SES group seemed more aware; the lower SES population more tolerant. Females were at an advantage since their hearing aid could get camouflaged; also they were rated more positively than males.

INTRODUCTION

Hearing is a phenomenon by virtue of which one can protect oneself from danger, establish communication with the society and above all, feel connected to the environment. This communication with our surroundings and with significant others receives a major setback in presence of a hearing impairment.

Hearing aids, on the other hand, improve one's ability to hear and communicate, enrich overall quality of life, relationships and feelings about oneself (Cienkowski & Pimentel, 2001). In spite of this, the acceptance of hearing aids by individuals with hearing impairment remains poor.

A number of studies found cosmetic appeal (Brooks, 1994), client attitude (Brooks, 1989; Baumfield & Dillon, 2001) or vanity, and the stigma associated with hearing aids (Kochlin, 1993) to be among the main factors affecting hearing aid use. Some of the other reasons cited are embarrassment (Brooks, 1994), perceptions of admitting one's handicap (Franks

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& Beckmann, 1985) being considered less competent (Cienkowski & Pimentel, 2001) less mentally alert, senile or stupid (Brooks, 1994). In other words, the concern of hearing impaired individuals is not entirely based on their own perceptions of how they look, but on how they perceive others as viewing a person with a hearing aid.

A number of researchers have explored the reactions of non-hearing aid users to the visual presence of hearing aids, Haley and Hood (1986), Iler, Danhauer, & Mulac (1982) being among the earliest. Danhauer, Johnson, Kasten, and Brimacombe (1985) coined the phrase, "the hearing aid effect" (HAE) to describe the display of such negative attitudes by people when they observed that an individual was wearing a hearing aid. Cameron, Cunningham, Lindner, Nicol, Chenoweth, and Driscoll (2008) have reported the HAE as being one of the factors affecting hearing aid use. Cienkowski and Pimentel (2001), Johnson, Danhauer, Gavin, Karns, Reith, & Lopez (2005) have reported cosmetic appearance, peer acceptance and low self-esteem as reasons for hearing aid rejection linked to the HAE. Ryan, Johnson, Strange, and Yonovitz (2006) found that females rated males more negatively than other females. Strange, Johnson, Ryan, and Yonovitz (2008) on the other hand found that females with hearing aids were judged more negatively than males, when they studied the Australian Aboriginal population.

Apart from gender, another important factor which influences the strength of an HAE is the cultural background of the raters. Stigma is a social construct that involves at least two fundamental components – the recognition of difference based on some distinguishing characteristic or "mark" and the consequent devaluation of the person (Strange et al., 2008). The extent to which being different is devalued varies from culture to culture and consequently, so does the resultant HAE. For instance, Indigenous Australian researchers describe 'shame job' or acute embarrassment at being made the centre of attention, as a unique cultural response of the Aboriginal people.

The socio-economic status of a person would also influence the HAE. Past research by Haley and Hood (1986) showed that students from rural schools demonstrated more HAE, as they were less exposed to recreational audio devices like walkmans, or mobile phones with earpieces, which look similar to a behind-the-ear hearing aid.

Cienkowski and Pimentel's modification of Saunders and Cienkowski's (1996) Attitudes toward Loss of Hearing Questionnaire (ALHQ 1.2) is one of the questionnaires that have been used by researchers for measuring the HAE. Cienkowski and Pimentel (2001) used a concise version of the ALHQ 1.2 for their study on the HAE in college sophomores. The 15-item questionnaire called the College Sophomores' Attitudes toward Loss of Hearing Questionnaire (C-ALHQ) had questions which assessed the stigma, knowledge of hearing loss and views regarding hearing aids.

Drawing from the above literature, the present study aimed at finding the extent to which the HAE prevails in the Mumbai population using the C-ALHQ and linear analog scales. It also investigated the effect of gender of both, the individual with hearing impairment and the normal hearing individual on the HAE. Socioeconomic status (SES) and gender were also studied as independent variables.

METHOD

Translation of the C-ALHQ (Cienkowski and Pimentel's concise version) in Indian languages

Since the lower SES group may not be familiar with English, the questionnaire was translated into Indian languages which were most commonly used in Mumbai, i.e., Marathi and Hindi. The two Indian versions were then reverse-translated by two pairs of native Hindi and Marathi speakers respectively. Two phrases underwent a change in the reverse-translated versions. In the reverse- translation of the Hindi questionnaire, "almost" in statement 3 became "as good as". Also in both the versions, "stupid" became "unintelligent". However, this did not lead to a change in responses as was seen when the English and Indian language versions were given to 10 participants (5 each for Hindi and Marathi) with a 72 hour gap between the two administrations. The consistency of answers across the two versions was found to be fairly good, the values of Spearman's rank correlation coefficients being 0.64 for the Marathi and 0.67 for the Hindi versions.

Photographs of two individuals with hearing impairment

Two adults with hearing impairment working at the Ali Yavar Jung National Institute for the Hearing Handicapped, Mumbai, wearing behind-the-ear hearing aids were explained the nature and implications of the study. A written consent form was given to them in order to obtain their informed consent to serve as models in the present study. Two photographs of these persons (1 male, 1 female) wearing a BTE hearing aid were taken from 90 degree azimuth. The photograph showed the person in an open-air surrounding, slightly smiling, to make the answer more ambiguous. No special efforts were made to make the hearing aid more conspicuous, as the models were wearing their usual hairstyle and attire. This was to improve the face validity and make the study representative of daily situations.

Participants

The sample consisted of 82 participants (40 males, 42 females) asymptomatic as regards hearing complaints, ranging from 25 to 55 years of age. All the participants either had normal visual acuity or were using appropriate optometric corrections. They were residents of Mumbai, belonging to two distinct socio-economic classes. The sample distribution and the test conditions they were exposed to are displayed in Table 1.

Procedure

Each participant was first shown a photograph (male or female) and asked to choose from among three options what the person in the picture was doing.

The options given were:

A. Listening to someone over the phone earpiece.

B. Listening to sounds through a hearing aid.

C. Listening to music through a headset.

Table 1: Sample distribution

Gender / *Class*	*Males*		*Females*	
	Male model shown	*Female model shown*	*Male model shown*	*Female model shown*
Higher socioeconomic group (a)	10	10	11	10
Lower socioeconomic group (b)	10	10	10	11

Key :

Group (a): Income above Rs. 10,000 per month (Slab III according to the criteria given by the Ministry of Social Justice and Empowerment)

Group (b): Income below Rs. 10,000 per month (Slab I and II according to the above mentioned criteria)

After the participant chose an option, he/she was then told the correct answer and then asked to rate the person along the three attributes or continua- health, intelligence and personality- on linear analog scales. Lastly, he/she was given the C-ALHQ and asked to mark "agree" or "disagree" for each statement for the questions given above with respect to "any individual with hearing impairment" (not with respect to the person in the photograph).

The data was classified and tabulated in various ways to arrive at conclusions regarding differences in responses by the different combinations of groups. Since normality of distribution could not be assumed, statistical analysis was performed using the Chi square test.

RESULTS

The C-ALHQ

Since the aim was to study the attitudes towards people with hearing aids and not towards hearing loss in general, the questions in the C-ALHQ which were representative of the HAE were chosen for analysis for the present study. The questions were as follows:

Q.2. Only old people wear hearing aids

Q.5. If someone wears a hearing aid, I know that he or she has a hearing loss and I am more considerate when talking to this person

Q.7. I always notice when someone is wearing a hearing aid

Q.8. People who wear hearing aids cannot think as quickly as without hearing loss

Q.15. I associate hearing aids with stupidity

The responses to the C-ALHQ revealed that 93.46% of the subjects would react considerately to a person with a hearing aid (Q.5). 60.92% would notice a hearing aid every time they see one (Q.7). 35.34 % associate hearing aids with slowness of thought (Q.8), 11.02% associate hearing aids with old age (Q.2) and only 11.25% associate hearing aids with stupidity (Q.15). An interesting finding was that the response latency for this last question was the least, further proving that the subjects would not even think of associating hearing aids with stupidity. The statistical analysis revealed no significant differences across gender for any of the questions studied. However it was seen that a significantly greater percentage of people from the lower SES group claimed to be considerate towards a person if they know he has a hearing loss (chi square= 4.98, df=3, $p<0.05$). They also felt that they would always notice if a person is wearing a hearing aid (chi square= 9.84, df=3, $p<0.05$), but wrongly associated hearing loss with slowness of thought (chi square=7.56,df=3, $p<0.05$). There was no interaction effect seen, i.e., the trend seen in the responses across socio-economic status does not change with gender. The results across gender and socio-economic status are displayed in Figures 1 and 2, respectively.

Response to the photograph

Overall, 72.04% of subjects correctly identified the hearing aid. Even this group of subjects estimated the possibility of the answer being A (phone) and C (music) to about 16.66% and 13.84% respectively. A significantly greater proportion of people from the upper SES group correctly identified the hearing aid in the photograph (chi square= 10.21, df=3, $p<0.05$). There was no significant difference in identification across gender of participants. Figure 3 displays pie diagrams showing the above results in greater detail Figure 3.

Figure 1: Percentage of "agree" responses across gender

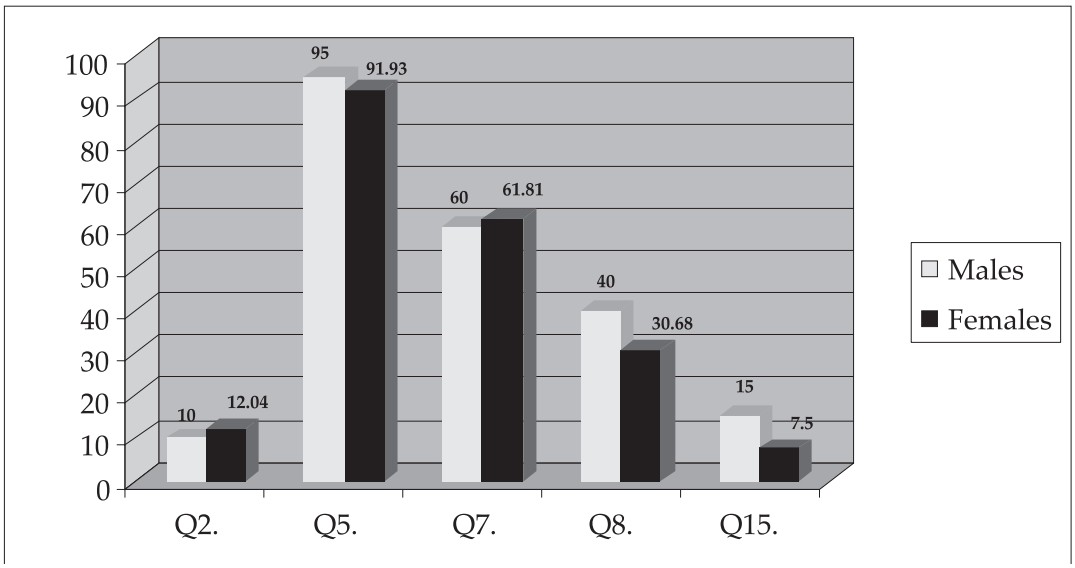
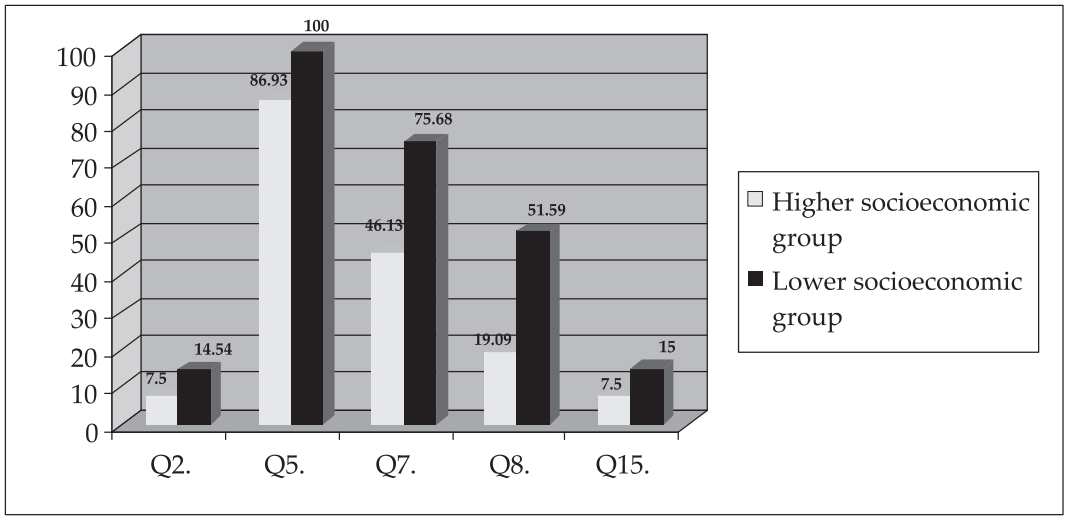


Figure 2: Percentage of "agree" responses across socioeconomic groups



Further, the male photograph appeared to elicit a significantly greater number of correct identification responses, as is evident from Figure 4.

There was no significant interaction effect observed between the gender of subjects, gender of models and the socio-economic status in responding to the photograph.

Positive ratings along health, intelligence and personality continua

Table 2 displays positive ratings along the three continua. (A positive rating was defined as marking at a point towards the right of the mid-point of the linear analog scale).

Table 2: Positive ratings along health, intelligence and personality continua

Attribute	*HSES*	*LSES*	*M/MM*	*M/FM*	*F/MM*	*F/FM*
Health	75.60%	70.73%	80%	75%	47.61%	90.47%
Intelligence	60.97%	65.85%	60%	70%	52.38%	71.42%
Personality	68.29%	87.80%	85%	75%	66.66%	90.47%

Key :

HSES: Higher SES group
LSES: Lower SES group
M/MM: Males who were shown the male model
M/FM: Males who were shown the female model
F/MM: Females who were shown the male model
F/FM: Females who were shown the female model

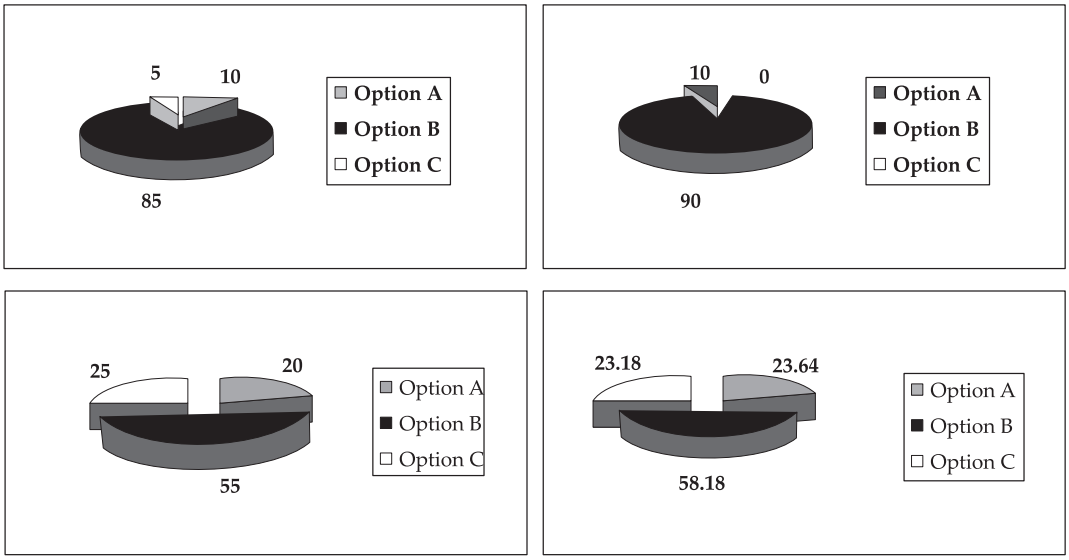
Three important findings stood out in this analysis. Firstly, a significantly greater number of people from the lower SES group gave positive responses for personality (chi square=6.01, df=3, $p<0.05$) (Figure 5). Secondly, the female model was rated more positively along the health continuum than the male. A greater proportion of these positive responses came from the higher SES group. This was because of a gender bias among males from the lower SES group who rated the female model more negatively than the male model along the health continuum (Figure 6). Thirdly, a gender bias was also seen among the female subjects in that a greater number of female subjects rated the female model positively on all the three continua, as opposed to the male model (Figure 7). No interactions were seen of the socio-economic status with the gender of the subjects.

DISCUSSION

The C-ALHQ

The results suggest that the HAE does prevail in the Mumbai population, though not to the extent of associating hearing aids with stupidity. Though subjects in the lower SES group felt that they could always notice a hearing aid when they saw one, the responses to the photograph indicated otherwise. They also wrongly associated hearing aids with slowness of thought. Though the higher SES group displayed relatively favorable attitudes towards people with hearing aids, the proportion of them who would themselves be concerned about being seen wearing a hearing aid (Q.1), was as high as 58.54%. This shows that potential hearing aid users often overestimate the HAE.

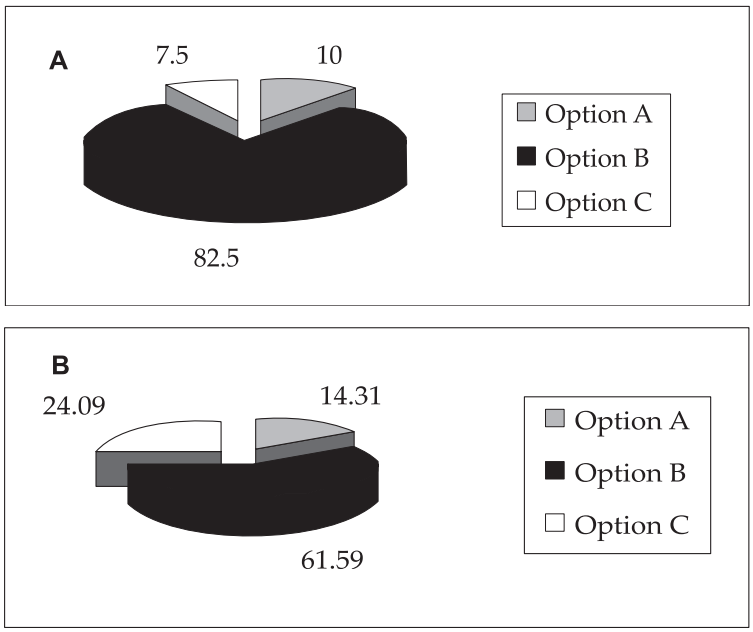
Figure 3: Pie diagrams showing percentage of people from various categories that chose each of the options given



(A) Higher SES males ; (B) Higher SES females

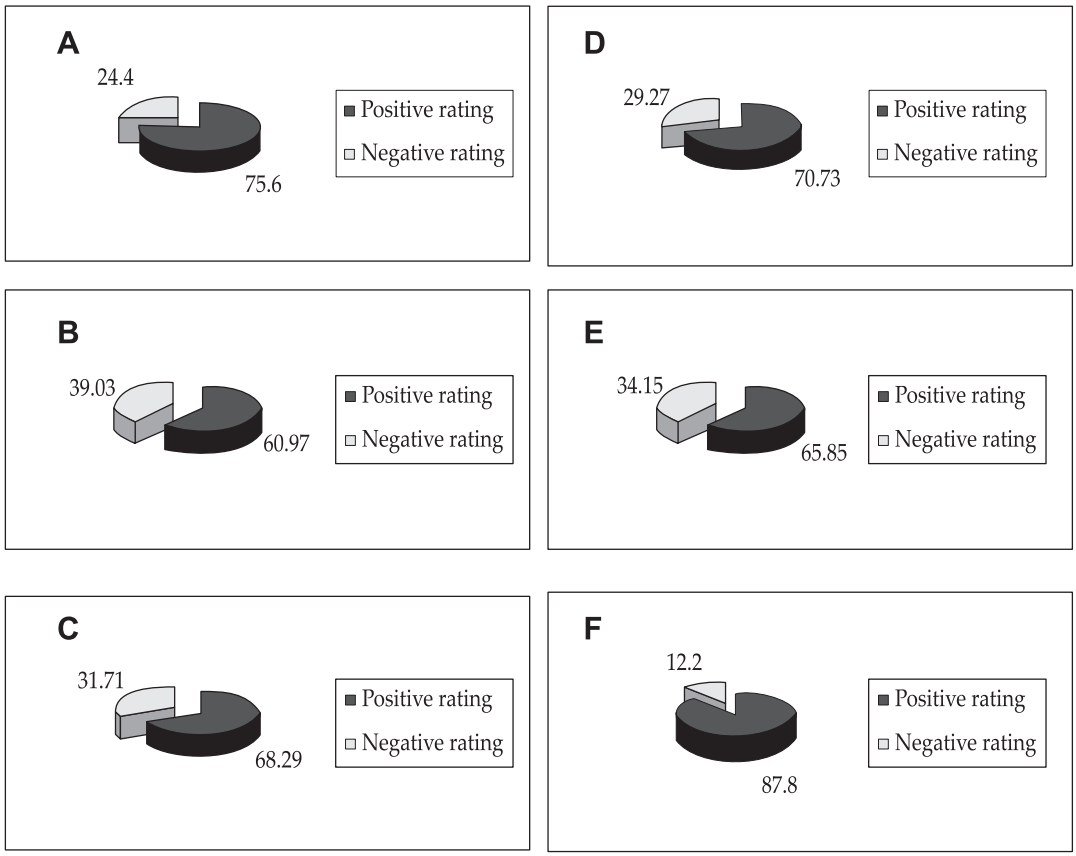
(C) Lower SES males ; (D) Lower SES females

Figure 4: Effect of models



(A) Male model; (B) Female model

Figure 5: Positive ratings along health, intelligence and personality continua



(A) Ratings by the higher SES for health

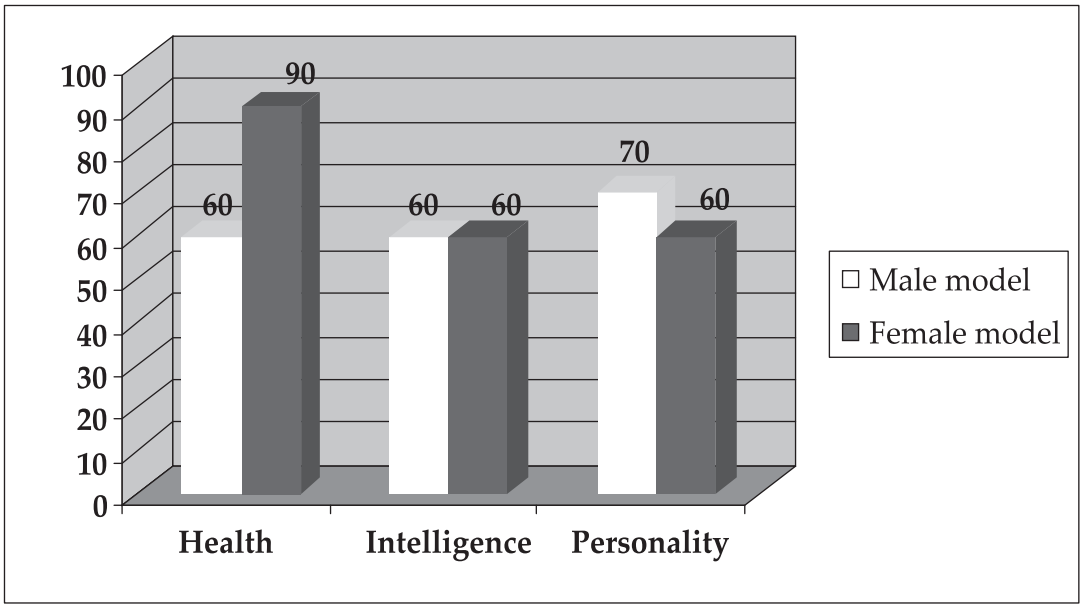
(B) Ratings by the higher SES for intelligence

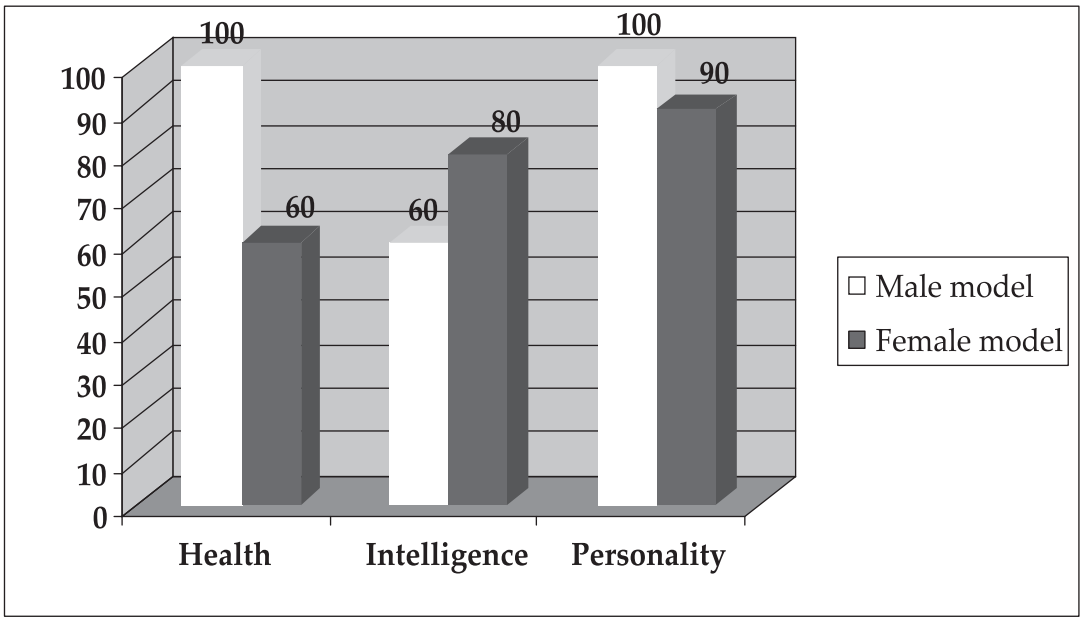
(C) Ratings by the higher SES for personality

(D) Ratings by the lower SES for health

(E) Ratings by the lower SES for intelligence

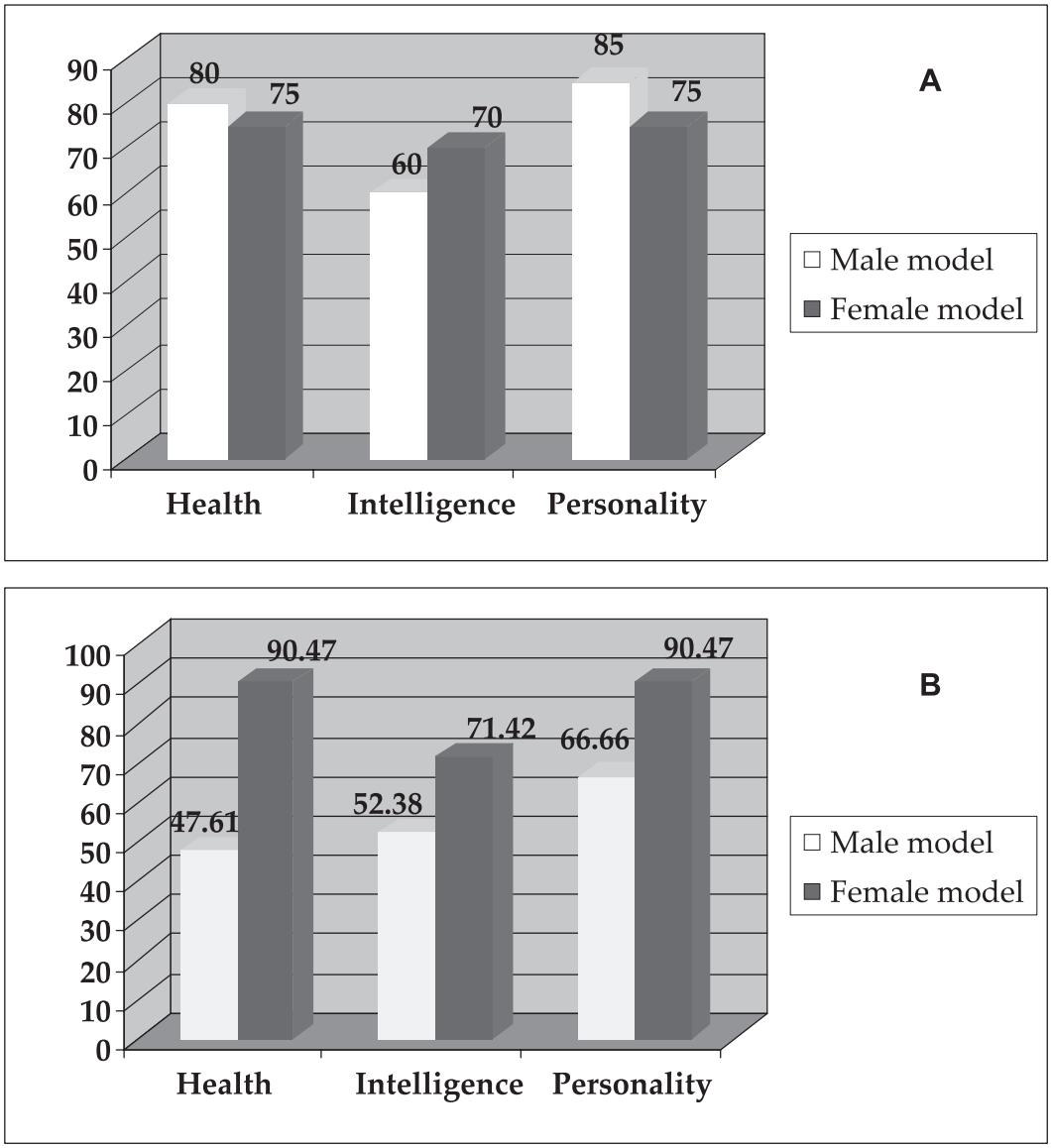
(F) Ratings by the lower SES for personality





(A) Ratings of higher SES males
(B) Ratings of lower SES males

Figure 7: Overall ratings along the three continua for male and female models



(A) Ratings of males (B) Ratings of females

Response to the photograph

A large number of people correctly identified the hearing aid in the photograph, and estimated the possibility of the answer being A or C as very minimal. However, they did state that there was a possibility of the answer being A or C. Also 27.96% actually chose options A or C over B. This again proves that a hearing aid would not always be stigmatizing as often people would not recognize it as one. Also, one must note that the task chosen was a closed set one, for the purpose of calculations. Thus if the subjects were simply asked "What was the model doing?", the correct responses would probably reduce.

Another important finding was that the correct responses elicited were greater for the male model. This was because the hairstyle of the female partially camouflaged the hearing aid. The findings suggest that females are at an advantage due to this and as a result would be less exposed to the HAE.

Positive ratings along health, intelligence and personality continua

The finding that females would be relatively less exposed to the HAE is further confirmed by ratings along especially the health continuum, where the female received more positive ratings than the male. Also a gender bias was seen on part of the female subjects, who rated the female model more positively than the male. The finding agrees with Ryan et al. (2006) but does not agree with Strange et al. (2008) who found that overall, females received more negative ratings than males. However, the responses on the health continuum by males from the lower SES group do partially agree with Strange et al. (2008), as males from this group seem to evaluate females on a stricter criterion along the health scale.

Another trend among the lower SES subjects as compared to the higher SES group was that a larger number of people from this group rated the models as positive along the personality continuum. This can also be correlated with the C-ALHQ response of being more considerate towards the person with a hearing aid. This might probably mean that the higher SES subjects have stricter criteria for a "good personality" and are less willing to make allowances for disability.

CONCLUSION

Studies to date, as also the present study, indicate that the HAE could be one of the reasons for rejection of hearing aids. However, the HAE is usually overestimated by potential hearing aid wearers, and hence it is important to make them aware that the normal population does not view them as negatively as they perceive. Some instances from the present study are, only 11.25% of the subjects in the present study viewed hearing aid users as stupid; some people even confuse hearing aids with other audio devices; and the very fact that in spite of not having extreme negative views about hearing aid users, the participants themselves would be most concerned about being seen wearing a hearing aid. Thus, a major part of the HAE dwells in the hearing aid user's mind. The results of the present study would be instrumental in clearing these false beliefs and self-deprecatory thoughts. Further studies could also investigate the impact of other variables like educational status of participants, etc., on the HAE.

Hearing aid users need to be counseled and made to weigh the benefits of hearing aids against the cosmetic factor and the HAE. The clinician could also suggest innovative strategies to reduce stigma, like adopting a hairstyle that hides the hearing aid, as is evident from the present study. Awareness among the general population about the causes and meaning of hearing disability, on the other hand, would be instrumental in reducing the HAE itself. A decreased HAE would mean lesser psychological distress and feelings of social isolation. As a result, a greater number of individuals will opt for hearing aids, aiding us further in reaching our goal of reducing disability and handicap to a minimum and achieving successful "rehabilitation" in the true sense of the term.

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A Study of Academic Anxiety of Visually Impaired Students in Relation to Their Academic Achievement

Rekha Rani[1]

ABSTRACT

The present study was conducted to explore the relationship between academic anxiety and academic achievement of visually impaired students. The level of academic anxiety and academic achievement of these students with respect to their gender, school setting, place of living, degree of impairment and onset of impairment was also studied. A sample of 282 visually impaired secondary school students was selected from various schools located at Delhi region. The total sample was categorized according to gender (male - female), school setting (inclusive - exclusive), place of living (urban - rural), degree of impairment (totally blind- low vision) and onset of impairment (born blind – acquired blind). A modified Hindi version of Academic Anxiety Scale for Children (AASC) by Singh and Sen Gupta to assess academic anxiety and composite of marks obtained by these students in final examination were used for academic achievement. Findings revealed that academic anxiety of visually impaired students was positively and significantly correlated with their academic achievement. Female students were academically more anxious than their male counterparts. Moreover school setting also has significant impact on academic achievement of visually impaired students.

Generally, individuals in our society often become anxious from time to time. Feeling of anxiety are caused by experiences of life such as serious illness, loss of one's sight, job, relationship breakdown, a major accident and death of someone close.

Anxiety is a basic human emotion consisting of fear and uncertainty that typically appears when an individual perceives an event as being a threat to the ego or self-esteem (Sarason, 1988). Anxiety may manifest itself as a feeling of helplessness, uncertainty of oneself, lack of sufficient strength in the face of external factors, and exaggeration of their potency and threat. Anxiety is not a bad thing. It is true that a high level of anxiety interferes with concentration and memory, which are critical for academic success. Without any anxiety, however, most of us would lack the motivation to study for exams, write papers, or do daily homework (especially in classes we find boring). A moderate amount of anxiety actually helps in academic performance by creating motivation.

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The visually impaired feel anxious because of their visual problems, thinking about how to cope with day to day activities, how to live an independent life and how to cope with the problems of blindness (Eniola, 2007). Further, one of the major factors that bring anxiety problem to people that are visually impaired is the society's reaction to people who are blind. This is because visual impairment seems to evoke more awkwardness than more other disabilities as blindness is a visible disability. For these reasons the visually impaired individuals have reasons to be anxious. This anxiety has a lot of influence on their academic performance. Milgram and Toubiana (1999) investigated the relationship between academic anxiety, academic procrastination in children and parental involvement in their children's school work and concluded that the students were less anxious about homework than the other academic assignments. Murthy and Kulshreshtha (1999) attempted to study the influence of academic anxiety on academic achievement of students studying in two management schools (government and private) and concluded that academic anxiety and academic achievement were inversely and significantly related. Students studying in private schools were academically more anxious than their counterparts in government schools. Dwivedi and Gunthey (2005) conducted a study to find the effect of medium of instruction on academic anxiety of school students. The findings of the study revealed that academic anxiety level of English medium students was significantly greater than that of the students of Hindi medium. Jain and Jain (2007) concluded that the adolescents with greater perceived parental encouragement had lesser academic anxiety. Interaction of type of study, gender and parental encouragement also had significant effect on academic anxiety. Chaudhary and Phogat (2010) found that low anxious totally visually challenged males are better adjusted than high anxious males while there was no significant difference between low anxious females and high anxious females. Researchers have studied visually impaired children academically also as many academic tasks are visual in nature. Needless to mention that scholastic achievement depends upon a number of factors. Nisar (1990) found that congenitally blind were superior in academic performance when compared with adventitiously blind. Effendi (1993) revealed that frustration affects the school achievement of the visually disabled school going students. Lali (1995) reported that the children with visual impairment scholastically performed at par with their non-disabled peers in integrated setting. Viyas (1995) compared the academic achievement of blind students and concluded that academic achievement of blind male students was higher than blind female students. Sheikh (2002) concluded that school achievement of visually disabled students may be predicted on the basis of frustration level. Subramanyam and Rao (2008) concluded that gender has no significant impact on academic achievement.

Based on the above literature the investigator had predicted that academic anxiety and academic achievement of visually impaired students may show some relationship and their gender, type of school settings, place of living, degree of impairment and onset of impairment may have some impact on these variables.

METHOD

Objectives

1. To study the relationship between academic anxiety and academic achievement of visually impaired students.

2. To compare the level of academic anxiety among visually impaired students with respect to their gender, school setting, place of living, degree of impairment and onset of impairment.
3. To study the academic achievement of visually impaired students in relation to their gender, school setting, place of living, degree of impairment and onset of impairment.

Hypotheses

1. There exists a significant relationship between academic anxiety and academic achievement of visually impaired students.
2. Visually impaired students differ significantly on academic anxiety with respect to their gender, school setting, place of living, degree of impairment and onset of impairment.
3. Academic achievement of visually impaired students differ significantly when compared on the basis of their gender, school setting, place of living, degree of impairment and onset of impairment.

Data Collection

A sample of 282 visually impaired secondary school students of Delhi region was selected for the study. This sample was further categorized on the basis of gender (male=162, female=120), school setting (inclusive=125, exclusive=157), place of living (urban=143, rural=139), (totally blind=166, low vision=116), (born blind=154, acquired blind=128). A modified Hindi version of academic anxiety scale was administered to the students for data collection. The instructions mentioned in the scale were read out and the responses were recorded by the investigator. For academic achievement the composite of marks were taken from the school records.

Operational Definitions

Academic Anxiety: is a kind of state anxiety which relates to the impending danger from the environments of the academic institutions including teacher, certain subjects like Mathematics, English, etc. (Singh and Sen Gupta, 1986).

Academic Achievement: is the knowledge attained or skills developed in school subjects, usually designated by test scores or by marks assigned by teachers or by both. *The Dictionary of Education* (Good, C.V.,1945).

Visually Impaired: In an educational (functional) definition, visually impaired or totally blind are those, who are so severely challenged that they must learn Braille to read and write while low vision students can still use their residual vision as a primary sense to deal with day-to-day visual demands with suitable assistive devices.

Tools

- The Academic Anxiety Scale has been developed by Dr. A.K.Singh and Dr. (Km.) A.Sen Gupta for use with school students. There are twenty items in this test to measure students' academic anxiety. These test items are 'yes' and 'no' type. The reliability of the scale is established by test-retest method (0.60) and split half method

(0.65) thus it is a reliable and valid test to measure academic anxiety of students. The scale is modified in the sense that two items demanding visual information were deleted. After this reliability of the scale was established (Spearman Brown Prophecy Formula, Garrit, p. 343). The scale was found reliable (0.56) to use with visually impaired students.

- Annual examination marks obtained from school records has been taken as the index of the academic achievement. The raw scores obtained by the students were converted into the percentages by the investigator.

Statistical Techniques Used

The data collected by the investigator from the sample were analyzed using suitable statistical techniques. Mean and Standard Deviation were calculated from the scores in Academic Anxiety Scale and Academic Achievement scores. Keeping in view the objectives of the study Pearson Product Moment coefficient of correlation 'r' was used to know the relationship between academic anxiety and academic achievement. 't' test was applied to test the significance of difference between the mean scores of the groups, i.e., male - female, inclusive - exclusive, urban - rural, totally blind – low vision and born blind –acquired blind students on the variables under study.

RESULTS AND DISCUSSION

The obtained results have been presented in the following tables:

Table 1: Coefficient of Correlation between Academic Anxiety and Academic Achievement of Visually Impaired Students

Variables	*N*	*Coefficient of Correlation (r)*
Academic Anxiety and Academic Achievement	282	0.128*

* Significant at 0.05 level.

An analysis of Table 1 indicates that academic anxiety of visually impaired students is positively and significantly correlated with their academic achievement. It means that as the academic anxiety increases among the students under study their academic achievement also increases. So anxiety found to have incremental effect on achievement, it motivates students to put their efforts for better performance in all the academic activities. However, this finding is contradicted by Murthy and Kulshreshtha (1999) as they concluded that academic anxiety and academic achievement are inversely and significantly related.

Table 2: Mean, S.D. and t-values of Visually Impaired Students on Academic Anxiety

S.No.	*Groups*		*N*	*Mean*	*S.D.*	*t-values*
1.	Gender	Male	162	9.64	3.15	11.47*
		Female	120	13.65	2.53	
2.	School Setting	Inclusive	125	11.17	3.71	0.77
		Exclusive	157	11.49	3.35	
3.	Place of Living	Urban	143	11.64	3.62	0.44
		Rural	139	11.04	3.38	
4.	Degree of impairment	Totally Blind	166	11.32	3.32	0.16
		Low Vision	116	11.39	3.78	
5.	Onset of impairment	Born Blind	154	11.23	3.44	0.63
		Acquired Blind	128	11.49	3.60	

* Significant at 0.01 level.

S.D. = Standard Deviation.

Table 2 indicates that mean score of female visually impaired students on academic anxiety is higher than their male counterparts as the obtained 't' value (11.47) is significant at 0.01 level, i.e., female students show higher level of academic anxiety. It means that gender has a significant impact on academic anxiety as far as this sample is concerned. However the 't' values obtained for other groups are not found significant indicating that visually impaired students do not differ on the level of academic anxiety so far as their school setting, place of living, degree of impairment and onset of impairment are concerned.

In the opinion of the investigator the reasons for high academic anxiety among girls may be their eagerness regarding examinations and results, curiosity to complete their academic assignments on time and they may be more reluctant regarding some subjects like English, Mathematics & Sanskrit, etc., as compared to their male peers. This higher academic anxiety may lead female students for more dedication of hours to their studies or other activities in academic areas. The review of related literature reveals that no such attempt has been made so far, however Jain and Jain (2007) have concluded that gender has a significant effect on academic anxiety.

Table 3: Mean, S.D. and t-values of Visually Impaired Students on Academic Achievement

S.No.	*Groups*		*N*	*Mean*	*S.D.*	*t-values*
1.	Gender	Male	162	58.83	11.97	5.37*
		Female	120	67.08	13.75	
2.	School Setting	Inclusive	125	60.06	8.18	2.58*
		Exclusive	157	64.15	16.16	
3.	Place of Living	Urban	143	62.29	13.52	0.07
		Rural	139	62.40	13.27	
4.	Degree of impairment	Totally Blind	166	61.54	14.19	1.21
		Low Vision	116	63.49	12.08	
5.	Onset of impairment	Born Blind	154	61.53	13.22	1.11
		Acquired Blind	128	63.31	13.54	

* Significant at 0.01 level.

S.D. = Standard Deviation.

It is evident from Table 3 that the academic achievement of female visually impaired students is significantly higher than their male peers (t=5.37). Moreover the mean score of exclusive school students (64.15) is higher than the mean score of their inclusive counterparts (60.06) depicting a significant difference (t=2.58) on academic achievement in favour of exclusive school students. However place of living, degree of impairment and onset of impairment found to have no significant impact on academic achievement of students under study.

The above results indicate that female students' academic performance is better than their male counterparts. The investigator opined that this result may be due to the higher academic anxiety among girl students. But the anxiety here is proved fruitful as they achieve in schools better than the boys. The reason for the better achievement may be due to their more attention, carefulness and systematic thinking and activities in their educational life. They devote more time to their studies; have balanced fear of failure and higher self-respect so far as their education is concerned. Suffice is to say that most of the time girls have been performing better than boys at every educational level. Almost every year girls outshine boys in different Board Examinations. But the present study does not find support from the study by Viyas (1995) who concluded that blind male students were higher in academic achievement than females while Subramanyam and Rao (2008) remarked that gender has no significant impact on academic achievement.

Moreover visually impaired students performed at par in exclusive schools when compared with their inclusive peers. It may be due to the more friendly environment of special schools where specially trained teachers solve their academic problems and special equipments and strategies used by them to handle various academic assignments. Adapted curriculum according to specific needs of students, sympathetic attitude of administrators and other school personnel, etc., may enhance the interest of these students in studies which leads to better academic performance in school which is somewhat lacking in regular or inclusive

schools. Furthermore the exclusive students are found to be academically more anxious than their inclusive counterparts however both the groups do not differ significantly but this high academic anxiety may contribute somewhat for their better achievement. The above results are in contradiction with the study conducted by Follansbee, et al (1997) according to which students with disabilities performed better in inclusive classroom than non-inclusive in at least one out of nine subjects. The similar results have been found by Lali (1998); Afrodili, et al (2007).

CONCLUSION AND SUGGESTIONS

The results of the present study indicate a positive relationship between academic anxiety and academic achievement. It signifies that academic anxiety up to a certain level is fruitful for better academic performance. Moreover, gender plays a significant role in determining the academic anxiety and academic achievement of visually impaired students. Female students having high academic anxiety performed better than males. Students belonging to exclusive schools have performed better than their inclusive counterparts; however they do not differ significantly on academic anxiety indicating that certain other factors may be responsible for their better academic performance in exclusive schools. In this connection there is a need to improve the level of academic anxiety and academic performance among visually impaired students, so efforts should be made to provide more equipped classrooms to make visually impaired students sensitized for their academic assignments. The teaching-learning environment in inclusive schools should be more conducive where visually impaired students may feel accepted by their peers, teachers and other functionaries of the school. The teachers and resource persons should pay due attention on the academic problems encountered by these students during the course of study which may lead them to become more concerned for their studies and to improve academic performance. Thus, the findings of the present study invariably suggest that there is a great need to provide encouraging academic environment in schools to maintain optimum level of academic anxiety and to improve the academic achievement of students with visual impairment.

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A COMPARATIVE STUDY OF STATIC AND DYNAMIC WRIST HAND ORTHOSES FOR HAND FUNCTION IN ADULTS WITH TETRAPLEGIA

K.K. Vidhupriya*, Sharad Ranga**

ABSTRACT

Splinting of the hand in the management of tetraplegia is a well accepted therapy intervention and has been an accepted practice for many years in the management of spinal cord injury. Even though splinting and orthotic fabrication is an accepted practice, there is minimal research data on the effectiveness of the intervention. This study measured the gain in hand function during a 21-day rehabilitation period in 30 persons with C6-C7 incomplete tetraplegia, 15 of whom wore a dynamic and 15 wore a static orthosis. Hand functions were measured in all subjects 0 day and 21 day of intervention. The result showed a significant difference in hand function between the groups.

Key Words: Spinal cord injury, Splinting, Hand function, Dynamic splint, Static splint.

In the Indian setup, as in most developing countries, very little is known about the exact incidence of spinal cord injuries (SCI). Approximate 20,000 new cases of SCI are added every year. 60-70% of them are illiterate, poor villagers. Most of them sustain this injury by fall from unprotected roofs, trees or fall into uncovered wells, which in fact are preventable causes.[1]

Spinal cord injury is a low incidence high cost disability requiring tremendous changes in the individuals life style.[2] Spinal cord injury affects conduction of sensory and motor signals across the sites of lesions.[3] In tetraplegic patients, hand function is very important for their independence in activities of daily living (ADL) and to increase their quality of life. Most tetraplegics prefer the recovery of hand function to that of the bladder, bowel or even to sexual function.[4]

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Spinal cord injuries can be caused by falling on the neck or back, or having the spinal cord moved or disrupted in another way. The vertebral bones or intervertebral disks can shatter, causing the spinal cord to be punctured by a sharp fragment of bone. Usually victims of spinal cord injuries will suffer loss of feeling in certain parts of their body. In milder cases a victim might only suffer loss of hand or foot function. More severe injury may result in paraplegia, tetraplegia, or full body paralysis below the site of injury to the spinal cord.[5] A spinal cord lesion at the cervical level often results in tetraplegia, with motor, sensory and autonomic functional loss.[6] In spinal cord lesion at C6 level, shoulder and elbow motions are stronger, and there is more coordinated extremity positioning, but active elbow extension is absent. The important wrist extensors are spared, permitting a tenodesis hand. Early use of appropriate splints benefits the quadriplegic patient in providing muscle exercise, mechanical function for purposeful activity and the assurance that the patient is capable of accomplishing tasks.[7]

Rehabilitation of the spinal cord injury patient from time of injury to hospital discharge is aimed at maximizing functional independence and preventing medical complications. Although multiple factors affect the ultimate performance of an individual patient, many authors, including Bed Brook (1980), stated that the neurological level of the lesion of the spinal cord lesion is the primary determinant of the degree of physical limitation.[8] Although there is currently no cure for spinal cord injury, there are medical, rehabilitative, and surgical intervention that can restore functional movements to the individual who sustain this type of injury.[9] The management of the upper limb is critical in the rehabilitation of the spinal cord injured patient. A major cause of deficient rehabilitation is inappropriate management of the upper extremity both in the early and last stages following the spinal cord injury. Because the tetraplegic patient is so dependent on his or her upper limb for all activities of daily living, the greatest potential improvement lies in the proper rehabilitation of the upper limb.[10]

The hand is vital to human function and appearance. It flexes, extends, opposes and grasps, allowing the performance of the necessary daily activities. The movement of the arm and hand must be coordinated for maximum function.[11] Robert H.J. (1969) suggested that ability of a patient to use his hand effectively in everyday activity is dependent upon integrity, mobility, muscle strength and coordination. For this reason, hand function should be assessed by tasks representatives of every day functional activities. Jebsen R.H. et al (1969) designed an objective and standardized test for hand function, consisting of seven items representing activities of daily living.[12] Mary C. Kasch (1997) supported that evaluation of hand function or performance is important because it indicate patient's ingenuity and ability to compensate for loss of strength, range of motion or presence of deformities.[12]

Splinting of the quadriplegic hand depends on the level of the lesion. Extremities that lack innervations above C7 level often require the development of a passive or active tenodesis grasp.[13] Early treatment is aimed at promoting the tenodesis effect. Orthotic splinting of the hand into a fixed position is commonly used to shorten the soft tissue in flexion and hence make wrist extension more likely to generate strong finger grasp.[14] The tenodesis splint has a functional value for a proportion of the patient with tetraplegia. The tenodesis splint is simpler, lighter, less expensive and less bulky. Its patient acceptance is supportably good.[7]

The result of the survey conducted by Sheila R. Krajnik, Mary J. Bridle to collect information about the application of the hand splints to patients with spinal cord injuries resulting in quadriplegia at levels C-5, C-6, C-7 and C-8, indicate that hand splinting is an accepted intervention for the target population. A variety of static splints designs were used, depending on level of injury, muscle strength, and the patient's acceptance. The dynamic splint designs were used most frequently with patients whose lesions were at C-6 and C-7.[15]

Splinting of the hand in the management of tetraplegia is well accepted therapy intervention and has been an accepted practice for many years in the management of spinal cord injury (Krajnik and Bridle). The therapeutic goals of splinting are immobilization, protection and support of the joints wrist and hand, prevention of joint malalignment, prevention and reduction of soft tissue shortening contractures, prevention of overstretch, counter acting hypertrophic scars, support of weak muscle, improvement of function and pain relief.[15]

Even though splinting and orthotic fabrication is an accepted practice, there is minimal research data on the effectiveness of this intervention. There appears to be a variety of splints made for similar purpose because there is little research as to what splint is best for the level and stage of SCI.[16] So the purpose of the study was to compare the effects of a static and dynamic wrist hand orthosis in improving the hand function of adults with tetraplegia. Also to design an orthosis in order to improve the hand function in persons with C6-C7 tetraplegia.

JEBSEN HAND FUNCTION TEST

Description and Purpose

The Jebsen Test of Hand Function, which consists of seven subtests (1) writing, (2) card turning, (3) small common objects, (4) simulated feeding, (5) checkers, (6) large light objects, and (7) large heavy objects. Jebsen, Taylor, Treischmann, Trotter and Howard (1969) was used to measure hand function. The Jebsen was designed to provide a short, objective, test of hand function commonly used in activities of daily living. There is a choice of four pre-written sentences for the writing subtest so that a different sentence can be selected for each retest with the same client.[6 & 12] These items assess broad aspect of hand function commonly used in activities of daily living and can be administered in short period of time. It utilizes test equipments and items, which are readily available. The total score is the sum of the times for each of the individual items.

The Jebsen Hand Function Test provides a standardized method of upper extremity functional assessment. It was designed as an objective evaluation of hand function for the assessment of the effectiveness of specific treatment.[17]

Validity and Reliability and Reference Data

Jebson R.H. et al (1969) had established the norms of the test by administering it in 300 normal subjects and 11 C6-7 quadriplegics, 12 hemi paretic and 10 rheumatoid arthritis patients. The coefficient of reliability was 0.60 to 0.99, indicating that each subtest was fairly reliable over time. The test retest reliability (r) is 0.89 to 0.99 in individuals with neurological disorders with movement impairments.[18]

METHODS

Subjects

30 persons with C6-C7 spinal cord injury who had been admitted to Indian Spinal Injuries Centre Institute of Rehabilitation Sciences, New Delhi were participated in the study. Subjects consists of 19 males and 11 females, ranging age from 20-40 years. Time since injury ranged from 4-12 months. Subjects was randomly assigned to two groups, group 1 and group 2. Both groups received the same rehabilitation treatment but group 1 is issued with a dynamic splint and group 2 with a static orthosis.

Description of the Orthoses

1. Dynamic Orthosis: Rehabilitation Institute of Chicago (RIC) Tenodesis Splint.

RIC tenodesis splint is a light weight Orthosis made of low-temperature thermoplastics in three separate pieces (wristlet, short opponens, and dorsal plate over index and middle finger) easily and quickly fabricated; made as a training and evaluation splint for patients. (Figure 1)

RIC Tenodesis Orthosis (Figure 1)

2. Static Orthosis: Short Opponens Orthosis

The short opponens made for this study was also of Institute of Rehabilitation type which includes a dorsal and palmar support, C bar and a thumb post made of low- temperature thermoplastics. (Figure 2)

Short Opponens Orthosis (Figure 2)

Procedure

The subjects were invited to participate in the study. A detailed explanation of the study was given to the subjects. Subjects signed an informed consent. One familiarization trial was given for Jebsen Hand Function test.

After the familiarization trial all subjects were assessed on Jebsen Hand Function test. Once the test was over subjects in group 1 were provided with dynamic splint (RIC Tenodesis Orthosis) and the second group with a static splint (short opponens orthosis) on the dominant hand, and both groups were assessed on Jebsen Hand Function Test with the splints on.

Allowed both groups to wear the splints for 21 days (8 hours a day). Post intervention measures were taken for both the groups using the same out-come measures after a period of 21 days of intermittent Orthotic use (Splinted and unsplinted).

DATA ANALYSIS

SPSS statistical software was used for data analysis. Statistically the characteristics of the groups and results were analyzed using student's t- test. Independent t test was used to compare between the groups. Paired t test was used to compare within the group.

RESULTS

Comparison of Demographic data showed no significant differences between the groups.

Comparison of preintervention scores of Jebsen Hand Function test between Group 1 and Group 2 showed no significant difference. Comparison of post-intervention scores of Jebsen Hand Function test between Group 1 and Group 2 showed significant difference. (Table 1)

Tables 2 and 3 shows the effect of time on performance with the Jebsen test. There was a significant improvement of hand function over time regardless of whether the subject wore a static or dynamic orthosis. But the improvement in first group (Dynamic orthosis) was better when compared with the second group (static orthosis). Group 1 showed a significant improvement in performance on the writing, simulated feeding, small common object putting, large light can and large heavy can subtests. Group 2 showed a significant improvement in performance on the small common object, simulated feeding, large light object and large heavy object subtests

Comparison between the post-intervention scores that is with and without using the orthosis showed a better performance with the orthosis in the first group whereas Group 2 showed no significant difference. (Table 4)

Table 1: Comparison of pre and post intervention scores of Jebsen hand function test between Group 1 and Group 2

Total	*Group 1*		*Group 2*		*t-value*
	Mean	*SD*	*Mean*	*SD*	
Pre	181.66	36.27	175.97	67.5	.29
Post	117.96	19.76	157.07	64.1	2.63*

**Significant.*

Table 2: Comparison of pre and post intervention scores in Group 1

Subtest	*Pre*		*Post*		*t-value*
	Mean	*SD*	*Mean*	*SD*	
Writing	23.68	8.51	20.95	7.59	3.70*
Card turning	14.18	6.43	17.33	6.17	4.37*
Small common object	60.64	24.74	30.21	13.96	9.03*
Simulated feeding	39.69	10.65	17.86	6.49	10.56*
Checkers	18.62	3.24	19.19	4.58	0.54^{NS}
Large light objects	17.66	10.45	8.89	3.09	3.94*
Large heavy object	21.96	6.85	12.32	4.34	6.61*
Total	*181.66*	*36.27*	*117.96*	*19.76*	*12.74**

**Significant.*
NS = Not significant.

Table 3: Comparison of pre and post intervention scores in Group 2

Subtest	*Pre*		*Post*		*t-value*
	Mean	*SD*	*Mean*	*SD*	
Writing	26.87	9.48	32.80	12.61	4.10**
Card turning	10.72	3.03	10.39	2.85	1.6 ^{NS}
Small common object	57.44	53.77	54.70	55.62	2.52*
Simulated feeding	37.52	19.94	19.56	12.32	7.24*
Checkers	16.40	4.38	17.72	3.99	2.72*
Large light objects	13.9	3.22	11.097	2.82	6.62*
Large heavy object	19.69	7.74	16.22	6.84	2.96*
Total	*175.9*	*67.45*	*157.07*	*64.1*	*6.09**

**Significant.*

NS = Not significant.

Table 4: Comparison between post intervention scores in Group 1 and 2

Total	*Post without splint*		*Post with splint*		*t-value*
	Mean	*SD*	*Mean*	*SD*	
Group 1	117.9	19.7	102.34	18.65	11.13*
Group 2	157.07	64.1	160.9	70.24	1.46^{NS}

**Significant.*

NS = Not significant.

Figure 1

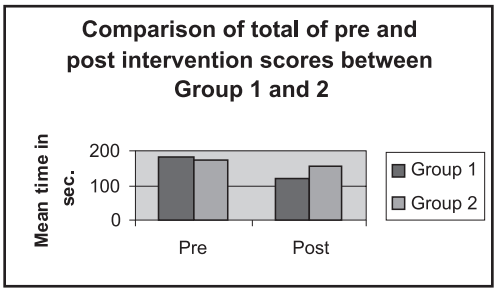
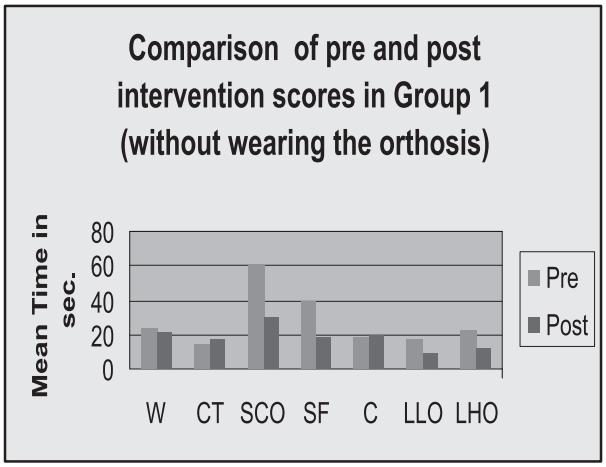


Figure 2



W=writing
CT=card turning
SCO=small object putting
SF=simulated feeding
C=Checkes
LLO=Large light object
LHO=Large heavy object

Figure 3

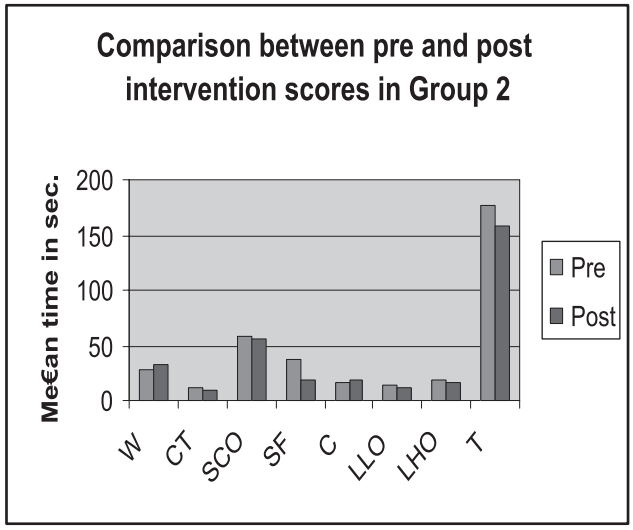
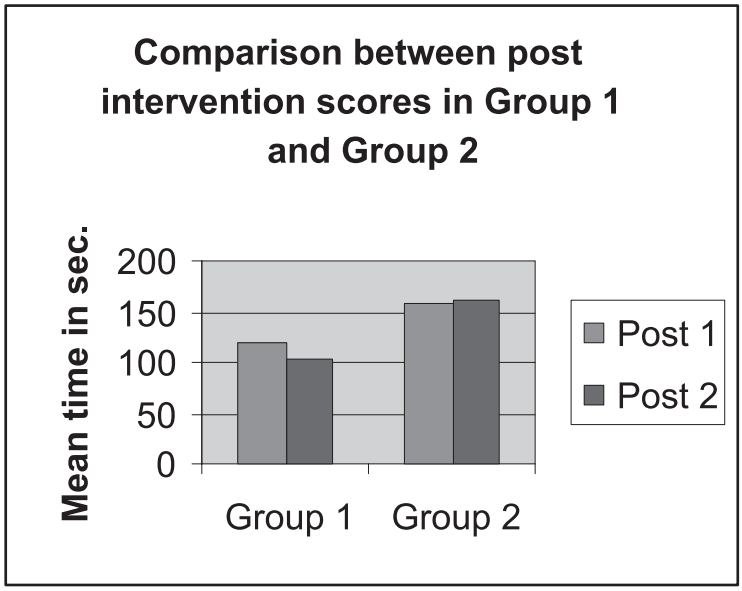


Figure 4



DISCUSSION

Purpose of the study was to compare the effect of a dynamic wrist hand orthosis and static orthosis in improving hand function in tetraplegics with C6 level of lesion. Comparing the treatment effect of static short opponens orthosis and Dynamic wrist hand orthosis (RIC orthosis) this study showed that both the chosen interventions resulted in significant improvement in hand function.

As shown in Tables 2 and 3 (Figs. 2 & 3) mean reduction of time to complete the test was significant in both groups. That is both the group showed a significant improvement in performance. Hence statistically both the interventions are effective in tetraplegic patients.

Comparing the pre and post intervention effect in Group 1 (Dynamic orthosis)

For Group 1 the result obtained indicate a mean reduction of time (181.66 ± 36.27, 117.96 ±19.758) to complete the Jebsen hand function test after treatment. Thus indicated significant improvement. (Table 2, Fig. 2)

For Group 2 (short opponens orthosis) the result obtained indicate a mean reduction of time (175.97 ± 67.44, 157.07 ± 64.11) to complete the test after treatment. That also indicated a significant improvement (Table 3, Fig. 3).

On comparing the difference between the pre and post of Group 1 and Group 2, the difference was more in Group 1 than Group 2. The percentage difference in Group 1 is 35.04 while that of Group 2 was 10.74 only. It has clearly been indicated that the improvement in hand function after dynamic orthosis wear was more significant than the static one.

Comparison of the pre and post individual subtest in Group 1 (Dynamic orthosis) and Group 2

Gain in improvement of writing was significant in Group 1 but the time taken was more after intervention in Group 2. Time taken to complete card turning subtest increased after intervention in Group 1 and there was no significant difference in performance in Group 2. Gain in improvement in small common object putting, simulated feeding and large heavy object were significant in both the groups. But the significance is better with the first group. Large heavy object subtest is also significantly improved in both the groups but it is more with Group 2 (static splinting group).

Checker stacking showed no significant difference in Group 1 but the performance significantly reduced in Group 2.

As shown in Tables 3 & 4 and Figs. 3 & 4 the dynamic splint was more effective in improving the performance of writing, small common object putting, simulated feeding and large heavy object placing. For placing large light cans static splint is more effective. Statistically both the splints were effective but the dynamic one is more effective than the static one.

On comparing the post intervention performance with and without wearing the orthosis, the performance was a little good with the orthosis in case of the dynamic orthosis intervention group and static orthosis group showed no significant difference in performance. It must be because of the short intervention period given to the subjects.

Improvement was noted on Jebsen Taylor Hand function test. Both groups demonstrated improvement in ability to use their hands for small and large object. So that manipulation activities in daily living tasks such as feeding, drinking from a cup, and picking up object become increasingly easier for persons with C-6 tetraplegia by wearing the orthosis.

Similar result was showed by Sheyl F. Davis (2000) in his study Comparison of Interventions for Hand Function in adolescents with tetraplegia in that the hand function is improved in all aspects but had difficulty with sustained grasp of smooth or small objects.[19]

Result of a study An Objective and Standardised Test for Hand Function showed that by wearing the dynamic splint there was improvement in all subtest of Jebsen hand function except in manipulation of the large objects which could be done better two unbraced hands than with one braced hand.[18]

Also DiPasquale-Lehnerz P. who did a study on orthotic intervention for development of hand function with C-6 Quadriplegia, shown that no significant differences were found between the control (with no Orthosis) and experimental (with a static orthosis) groups; hand function had improved significantly in all 13 subjects.[20]

Tenodesis splint has a functional value for a proportion of patient with tetraplegia.[7] Work done by Ditunno, Stover, Donovan; Waters and Snezek (1989) indicate a steady increase in the occurrence of incomplete lesion and concomitant decrease in complete lesion over the past 10 years. This suggests that early splinting to preserve the architecture of the hand will be even more important in the future because ultimate hand function is more difficult to predict in person with incomplete lesion.[15]

The study has several limitations that may account for the results. First, the length of the orthosis was worn may not have been sufficient to produce the effect. Secondly, the daily activities and exercises like push ups and other hand exercises could counter acted any stabilization of the thumb produced by the orthosis as the orthosis worn mostly at night.

Relevance to Clinical Practice

The result of the study indicated that the dynamic splints are more effective and to be applied to patients with C6 and C7 lesions.

The tenodesis splint must use in the rehabilitation of lower cervical lesion tetraplegics routinely, when they achieve active dorsiflexion of wrist so that they can be made more independent in their ADL activities.

FUTURE RESEARCH

The study utilized the two treatment interventions to compare the short term effect of the interventions in hand functions. The long term effects of these interventions should be studied. Future studies are recommended to which include a bigger sample group to broaden the generalizability of the findings.

Persons with quadriplegia will often perform functional task using both the hand, but the test used in the study was unilaterally administered. So future studies are recommended to assess the bimanual manipulation. Also recommended double blinded and randomized controlled trials.

CONCLUSION

The findings of the study support the hypothesis that the Dynamic orthosis is better than the static splint in improving the hand function in tetraplegics as assessed on Jebsen Taylor Hand Function Test. However due to limitations in the study it is recommended that the scope of study and size of sample should be increased and the long term effects of these interventions should be studied.

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An Exploratory Study of The Effects of Neurological Condition of Epilepsy on the Social & Functional Skills of The Mentally Challenged

Kalidas Nagnath Supate[1]

INTRODUCTION

According to American Association of Mental Retardation (AAMR) – "Mental Retardation is significantly sub average general intellectual functioning, resulting in or associated with concurrent impairments in adaptive behavior and manifested during the developmental period".

Mental Retardation is classified by different methods, such as Medical, Educational and Psychological. Medical classification is based on cause. Whereas Psychological classification is based on the level of intelligence and the educational classification is based on the current level of the functioning of the Mentally Challenge Person Child.

Medical classification states different causes of Mental Retardation such as –

1) Infections and intoxications.
2) Trauma of physical agent.
3) Metabolism or Nutrition.
4) Gross Brain Diseases (Post Natal).
5) Unknown prenatal influence.
6) Chromosomal abnormality.
7) Gestational disorder.
8) Psychiatric disorder.
9) Environ Mental influence.
10) Other influence.

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Educational classification classifies the Mentally Retardation as :-

1) Educable, 2) Trainable, 3) Custodial.

Psychological classification classifies the Mentally Retarded as Mild (50-70), Moderate (35-49), Severe (20-34), Profound (below 20).

The causes of the Mental Retardation are varied and widespread. There are factors, which affect the fetus at conception, or even before the conception. There are factors, which affect the fetus at prenatal, natal and even postnatal stages. There are also certain sociological and cultural factors, which cause Mental Retardation.

Whatever may be the cause Mental Retardation is accompanied by several other conditions such as Neurological conditions, Physical Handicaps or behavioral and Psychological Conditions. Epilepsy is one such neurological condition, which is present among the persons with Mental Retardation.

It has been found that epilepsy affects approximately 1% of general population. Whereas the prevalence of Epilepsy among people with Mental Retardation is much higher. About 20-30 % of people with Mental Retardation are affected by epilepsy.

The word epilepsy comes from the Greek word Epilepsy which means grabbed, attacked or seized. Epilepsy is a tendency to have recurrent seizures (also called as fits or epileptic attacks), which results from disturbances in the normal electrical activity of the brain.

The human brain is a unique computer, which works all 24 hours every day. It is built up of billions of nerve cells called NEURONS. The neurons have electrical activity and this is transmitted through the axons and dendrites. This electrical impulse is transmitted from one neuron to another through the chemical messengers (neurotransmitters), which are present in the Synapse, a neuroneuronal junction. If a group of nerve cells start sending these impulses excessively, it results into epileptic attacks.

What Causes Epilepsy?

Epilepsy is a symptom of many diseases. Just as headache is a symptom, which has a number of causes, epilepsy can be caused by a number of illnesses in the brain.

1. Idiopathic (Approximately 50%)	No demonstrable cause.
2. Symptomatic (Approximately 50%)	Prenatal injuries. Low sugar, sodium or calcium. Develop mental defect of the brain. Cerebral infections like meningitis, encephalitis. Cerebral injuries. Cerebral tumors. Cerebro vascular attack Cysticercosis and tuberculoms. Others.

Classification of seizures

Early the seizures were classified as follows:

1. Partial seizures

    Simple partial seizures

    Complex partial seizures

2. Generalized seizures

    Gradual seizures

    Petitmal seizures

But, now after understanding the various clinical features, the types of seizures are more descriptive and specific. According to the most widely accepted classification system- 'International league against epilepsy – 1981', seizures are classified as follows:

1. Partial

    a) Simple partial (consciousness is not lost)

        - Motor

        - Sensory

        -Psychic

    b) Complex partial (consciousness is impaired)

    c) Partial – Generalized

2. Generalized (Consciousness is lost)

    a) Tonic – clonic (grand mal)

    b) Tonic or clonic

    c) Myoclonic

    d) Absence (Petitmal)

    e) Atonic

3. Unclassified

In partial seizures, the abnormal electrical discharge occurs in a localized area in the brain. Hence, the symptoms depend upon the area of brain involved – motor or sensory. These simple partial seizures when associated with impairment in the consciousness they become complex partial seizures.

In generalized seizures the abnormal electrical discharges originate from the entire cortex of the brain. This leads to loss of consciousness. In tonic – clonic seizures, common type of generalized seizures, patient falls to the ground without warning. Limbs become stiff. This is called tonic phase. This is followed by jerking movements, which is called clonic phase. Most

patients sink into a deep sleep after a seizure for ½ hour to 2 hours. During fits patient may develop foam at mouth, bite his tongue, and pass urine or motion. When the patient wakes up he is totally unaware of what had happened. He may have headache or body ache due to muscular exertion. The duration of seizures can vary. Usually it lasts for one to two minutes.

In the present study an attempt was made to find out the extent of epilepsy among the students of Kamayani Prashikshan & Sanshodhan Society. The attempt was also made to find out level of awareness among the parents about the epileptic attacks in their Mentally Challenged ward. The attempt was also made to find out if epilepsy affects the social and functional skills of the Mentally Challenged.

AIMS & OBJECTIVES OF THE STUDY

1) To study the extent of Epilepsy among M.R.
2) To study the general awareness level of the parents about the condition, medication, onset of epilepsy in their Mentally Challenged ward.
3) To study the effects of epileptic attacks on the functional and social skills of the Mentally Challenged.

METHODOLOGY

Sampling Procedure – Deliberate or judgement sampling method was used to collect the sample of the study. By this method the students who have or had the history of Epilepsy were selected for the study. The subjects were selected based on the judgement of social worker and special teachers who continuously observe the subjects over a long period of time.

Sample size - A sample of 10 subjects was selected by using the deliberate and purposive method of sampling. These subjects showed the history of Epilepsy either in the part or in present.

Tools of Data Collection -

1) Separate Questionnaires were prepared for the parents and special teachers to collect the relevant data.
2) The relevant data and medical histories were taken from the case files of the subjects.

DATA ANALYSIS

Data thus collected was analyzed. Single frequencies were found out and percentages were calculated for each variable. Data thus analyzed is presented in the form of following tables.

Table 1: Male female ratio in the sample

Sr. No.	*Gender*	*Frequency*	*Percentage*
1.	Male	9	90
2.	Female	1	10
	Total	**10**	**100**

It was evident from Table 1 that 90% of the subjects in the sample were the males where as only 10% of the subjects were the females. This could be attributed to the fact from human Physiology and Biology that the male embryo is physiologically weak compared to the female embryo. This also has direct repercussion on the male female ratio, which is 1.5: 1 (DSM IV) in case of Mental Retardation. Thus the general physiological weakness of the male fetus may be the reason of more Mentally Challenge males with accompanied neurological condition of Epilepsy than found in females.

Table 2: Onset of Epilepsy

Sr. No.	*Onset of Epilepsy (age)*	*Frequency*	*Percentage*
1.	Birth		
2.	Birth – 6 months	3	30.00
3.	6 months – 12 months	2	20.00
4.	1 yr. – 3 yrs.	4	40.00
5.	3 yrs. – 6 yrs.		
6.	6 yrs. – 10 yrs.		
7.	10 yrs. & above	1	10.00
	Total	**10**	**100.00**

It is evident from Table 2 that 30% of the subjects had their 1st epileptic attacks within the first year after the birth, 40% of the subjects had the onset of epileptic fits before 3 years of their physical age, and only 10% of the subject got their 1st epileptic attack after 10 years of physical age. Thus it is found that the neurological condition of Epilepsy occurs mainly in the 1st 3 years after the birth.

Table 3: Onset of Medicines

Sr. No.	*Since when the medicines started*	*Frequency*	*Percentage*
1.	Immediately	8	80.00
2.	After 6 months	1	10.00
3.	Never	1	10.00
	Total	**10**	**100.00**

It is evident from Table 3 that in 80% of the subjects medicines were started immediately after the subjects get the 1st attack of epileptic fits. Thus this shows that the parents of these subjects had higher level of awareness about the accompanied Epileptic condition of their Mentally Challenged child while 10% of the subjects were started medicine of anti-epilepsy after the 6 months of the epileptic attack. Thus it can be said that the awareness level of these parents was medium as they did not start the treatment immediately. Only in case of 10% of the subjects they were never given the anti-epileptic treatment by their parents. This shows the total absence of awareness on the part of parents about the accompanied neurological condition of Epilepsy among their Mentally Challenged ward. This could be due to ignorance, negligence, poverty, non-availability of the treatment and expert doctor.

Table 4: Type of attack

Sr. No.	*Type of attack*	*Frequency*	*Percentage*
1.	Mild	3	30.00
2.	Medium	5	50.00
3.	Severe	2	20.00
	Total	**10**	**100.00**

It is evident from Table 4 that 30% of the subjects had mild attack. They had rigors for 1 – 2 minutes. They kept quiet or showed jerking movement, 60% of the subjects got attacks of medium type where it lasted for 2 to 4 minutes, where they demonstrated behavior like straitening of hands and feet, teeth heightening, turning eyes, it affected their face. The parents gave crushed onion to smell, it helped the subjects.

It is found that only 20% of the subjects got severe type of attack. They demonstrated various behaviors such as biting the tongue, widening of the eye balls, kicking of hands and feet, the rigors lasted for half an hour or till the subjects were given the injection. Thus it shows that majority of the subjects got attack of medium level.

Table 5: Symptoms before the attack

Sr. No.	*Symptoms before attack*	*Frequency*	*Percentage*
1.	Yes	8	80.00
2.	No	2	20.00
	Total	**10**	**100.00**

It was found that 80% of the subjects showed varied symptoms before they got the epileptic attack. These symptoms were like widening of eye balls, grinding of teeth, lips, frightening loss of control in the limbs of either side, quieting, fever, body straitening. After seeing those signs parents got the warning that their ward would get an epileptic fit soon.

Only 20% of the subject did not show any symptoms prior to the epileptic attack.

An effort was made in the study to find out that for how many years the subjects were attack free.

Table 6: How many years are attack free

Sr. No.	*Attack free years*	*Frequency*	*Percentage*
1.	Attacks still continued	2	20.00
2.	2 Yrs		
3.	3 Yrs	3	30.00
4.	4 Yrs	1	10.00
5.	5 Yrs & above	4	40.0
	Total	**10**	**100.00**

It was evident from Table 6 that 80% of the subjects were attack free and 20% of the subjects were still getting the epileptic fits periodically. It was found that 30% of the subjects were attack free for 3 years. Thus it shows that continuous medication helps in reducing the frequency of the epileptic fits whereas 40% of the subjects were found to be attack free for more than five years.

Table 7: Type of medication

Sr. No.	*Type of Medication*	*Frequency*	*Percentage*
1.	Homeopathy	1	10.00
2.	Allopathic	8	80.00
3.	Ayurveda	1	10.00
	Total	**10**	**100.00**

The data analysis in the above table showed that 80% of the subjects had believed in Allopathic medicine, as a curative therapy for the neurological condition Epilepsy. Only 10% each had opted for Homeopathy and Ayurveda. Popularity, availability, easy in take could be some of the reasons for selecting Allopathic by the parents for the treatment of epilepsy in their Mentally Challenged child.

Effect of Epilepsy on the Social Skills of the Subjects

An effort was made in the present research to study whether epileptic attack affected the social skills of the subjects. Social skills that are expected to be present in the individual depend upon his ability and chronological age. In case of Mentally Challenged the social skills expected to be present in the vocational groups are different from the care groups. But in general the social skills are the array of skills such as eye contact, responding to one's name, social smiling, playing with others, sharing, greeting other differentiating strangers from familiar people, social member, defending one's self, communication through words, sentences, verbal or signs, following message, asking for help, taking care of belongings, going for a walk independently. Buying two items written on a paper from nearby shop, reading sign boards, directions, narrating in 2-3 sentences about past event, standing in a queue, participating in social functions without attracting undue attention, telling time.

Table 8: Effect of Epilepsy on the social skills of the subjects

Sr. No.	*Effect on social skills*	*Frequency*	*Percentage*
1.	Yes	6	60.00
2.	No	4	40.00
	Total	**10**	**100.00**

It was found that according to the observations of the special teachers and the social workers in case of 60% of the subjects their epileptic condition did affect their social skills. Many a times they are humiliated by the society as those who get fits. This affects their confidence. They and their parents does not feel secure to send them in the social gatherings or in crowded situations. The subjects show the tendency of feeble mindedness. They tend to remain aloof, insecure, and withdrawn.

Effect of Epilepsy on the Functional Skills of the Subject

The functional skills among the Mentally Challenged depend upon their abilities and chronological age. The functional skills include array of skills such as furniture dusting, cloth folding, wiping and washing dishes, sorting out and peeling vegetables, helping in the kitchen, getting into the bus independently, watering plants, preparing coffee, tea, salad, small snacks, taking phone messages, going to market /general store to buy provisions, describing various transport modes, doing simple first-aid, using the balance, functional skills related to different vocations such as weaving, book binding, stitching, idol, candle, greeting cards making. In the present study an effort was made to find out whether the neurological condition of epilepsy affected the functional skills of the subjects.

Table 9: Effect of Epilepsy on the Functional Skills

Sr. No.	*Effect of Epilepsy on functional skills*	*Frequency*	*Percentage*
1.	Yes	7	70.00
2.	No	3	30.00
	Total	**10**	**100.00**

It was observed that in 70% of the subjects the neurological condition of Epilepsy affected their functional skills. It was found that the subjects, who were on the antiepileptic medicines, showed the signs of lack of enthusiasm, lethargy, slowness, dullness in the movements. They could not participate in the game. Activities like writing, sewing sometimes got affected. In case of 30% of the subjects the special teachers, social workers did not find any effect of epilepsy on their functional skills.

Effect of Epilepsy on the Academic Progress of the Mentally Challenged

The Mentally Challenged is taught academics, which broadly include 3 Rs, viz., Reading, Writing and Arithmetic. This is taught on functional base and first hand experiences. The principals of individuality freedom from the Montessori teacher's training method is used which is the basis of special education.

The academic skills for the Mentally Challenged include several skills such as showing parts of body, holding pencil, coloring, tracing, naming alphabets, writing numerals upto 100, differentiating, counting identifying, grouping notes, coins, naming animals, birds, doing simple additions and subtractions, reading calendar, clock, measuring, naming vegetables, flowers, fruits, clothes, pulses, reading and writing simple sentences, telling the names of the prime minister, chief ministers, of the country, State, Indicating sources of water, sources of milk products.

Table 10: Effect of Epilepsy on the Academic Progress

Sr. No.	*Effect of Epilepsy on Academic progress*	*Frequency*	*Percentage*
1.	Yes	6	60.00
2.	No	4	40.00
	Total	**10**	**100.00**

It was observed that in case of 70% of the subjects, their epilepsy affected their academic progress. It was found, that the drugs made them drowsy, sleepy, their absenteeism was more than the others in the class. This made it difficult for the teachers to maintain the continuity and the speed in their academic program. In case of 40% of the subjects, their epileptic condition did not show any effect on their academic progress.

CONCLUSION AND SUMMARY

Epilepsy is common and probably affects one in 200 of the population in one form or the other. In addition to the individual misery it presents a massive social problem. The treatment of epilepsy is not with the drugs alone. The meticulous explanation in terms that the patient and his relatives can understand is equally important. There are many popular beliefs to be dispelled, in particular the common assumption that epilepsy is a form of insanity and that recovery is impossible.

The epileptic life is hedged with restrictions; work is difficult to obtain or to keep. The dread of further fits arouses fear in onlooker. Restrictions should be as few as possible particularly in children.

Preventive treatment of epilepsy consists of the regular administration of drugs, i.e., anticonvulsant. Modern anticonvulsant are very effective, and in proportion of patients the fits can be completely controlled, while in many others they can be made no more than occasional occurrences. In many cases the structural brain damage causes fits and even the behavioral disorders in the patients.

The fits accompanied with Mental Retardation are a serious condition, and are a cause of constant worry and anxiety for the parents of such children.

The present study was an attempt to find out the effect of epilepsy on the social and function skills as well as the academic progress of the epileptic subjects. It can be said that individual differences are prominent and it is difficult to make generalization as in each case the cause, condition of Mental Retardation is different.

It was observed that epileptic Mentally Challenged showed deterioration in the functional skills when accompanied to non-epileptic Mentally Challenged.

This can be due to the fact that the anti-convulsant resulted in lethargy, slowness, dullness in movements, caused lack of enthusiasm in their childhood they could not participate in stimulating activities like games. Thus the adult subjects showed lack of functional skills.

The social skills and academic progress are also affected due to epilepsy. The occurrence of fits or even the threat of recurrence of fits causes lack of confidence, creates the feeling of insecurity among the subjects, as well as the parents. These results in social restrictions which causes lack of or decreased social skills.

The epilepsy also affects the academic progress of the subjects. Initially due to Mental Retardation, the intellectual impairment limits the academic progress. The epileptic fit in addition to Mental Retardation impairs the academic progress more.

Epilepsy & Mental Retardation

Epilepsy affects approximately 1% of general population. Whereas the prevalence of epilepsy in people with Mental Retardation is much higher. About 20-30% of people with Mental Retardation is affected by epilepsy.

But the epileptic Mentally Challenged can also be managed well. It requires the teamwork approach and involvement and acceptance by the parents. The family members should be given proper explanation about the nature and probable causes of epilepsy, the importance of usage of the recommended drug in optional doses for required duration. The side effect problem of the medication, the importance of monitoring of drug levels in blood periodically, the importance of investigations (ECG, CT Scan, MRI), the risk of recurrence and relapse and the progress of the condition must be well explained to the parents.

DO'S

- Keep calm, help the patient lie down. Remove glasses, loosen the tight clothing.
- Clear the area of hard, sharp or hot objects which could hurt him, keep rolled up towel or pillow under his head.
- Turn him to the side to drain saliva from tightly held teeth.
- After the attack, if patient is sleepy permit him to rest.

DONT'S

- Do not allow people to gather around him. Allow free air circulation and open all windows.
- Do not restrain the convulsive movements.
- Do not force anything between his tightly held teeth.
- Do not offer anything to eat or drink till he is fully conscious.

Call for doctor only if the.....

- Patient is injured.
- Has repeated seizures.
- Patient is unconscious for a long time.
- Has difficulty in breathing.
- This is his first seizure.

Points to be noted when you have a case with epilepsy and Mental Retardation

- Repeated fits can damage the brain and can lead on to further deterioration.
- When a child with Mental Retardation is learning a task, occurrence of a fit can lead on to difficulty in learning.

- Explain to the family members regarding the nature and probable cause of epilepsy (if known), the importance of usage of the recommended drug in optimal doses for required duration, the side effect profile of medication, the importance of monitoring the drug levels in blood periodically, the importance limitation of investigations (EEG, CT Scan or MRI), the risk of recurrence and relapse and the prognosis of the condition.
- Last but not least, emphasis on rehabilitating the person with Mental Retardation and epilepsy is essential. Care to be taken to restore the socio-occupational and psychological status of the person.

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