

## Psychological intervention for enhancing resilience in self among hearing-impaired students - An experimental study

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The present paper aims to examine whether resilient-self can be enhanced among students with hearing impairment by adopting a psychological intervention appropriately formulated for the purpose. The effect of the intervention was examined in a two-group pre-test post-test experimental study. The areas of self-concept included in assessing resilient-self were physical self-concept, social self-concept, academic self-concept, and transpersonal self-concept. The enhancement of these four self-concepts and academic achievement is considered to lead to an enhancement in resilient-self. A purposive sample of 109 students with severe to profound hearing impairment in the age group of 16 to 24 years from low socioeconomic background was recruited from three schools in Kerala, India. The students were randomly assigned to either the experimental (n=52) or the control group (n=57). The physical self-perception profile, social self-concept scale, academic self-concept scale, transpersonal self-concept scale, and academic performance record were employed for assessment. The intervention spanned over 15 weeks and used techniques like conceptual teaching, storytelling, and self-reflection. Analysis of the increment scores obtained after intervention showed that the psychological intervention had a positive and significant effect on the resilient-self of the participants in the experimental group. The findings imply that psychological interventions are beneficial for individuals with hearing impairment and improve their skills for developmental adaptation. .

**Keywords:** Resilience, hearing-impaired, self-concept, academic achievement

Hearing impairment is an inability to hear and understand speech through the ear alone (Gallaudet Encyclopedia of Deaf people and Deafness, 1987). Hearing impairment connotes hearing loss (Dorland's Medical Dictionary for Health Consumers, 31st edition, 2007) and is indicated by a reduction or a defect in the ability to perceive sound (The American Heritage Medical Dictionary, 2007). Hearing impairment means the loss of hearing that adversely affects an individual's ability to communicate (Mosby's Medical Dictionary, 8th edition, 2009).

Hearing impairment is a multifaceted condition with medical, neurological, social, and psychological aspects. It has an overwhelming and adverse impact both on the development of individuals and on the psychological wellbeing of their families. The impact of deafness on the wellbeing of children has been well documented. Hearing impairment has been studied from

varied perspectives in a variety of fields including neurology, psychiatry, and psychology. There is a consensus among many studies that suggest that children with hearing impairment follow many different developmental pathways in their development under a challenging condition due to their impairment. The impairment may interfere with their developmental adaptation. The individual is deprived of the sound and of the acquirement of communication skills, and the ability to converse with parents and friends, which increases the developmental gap between them and their normal peers.

Reduced or no auditory input adversely affects the development of the central auditory nervous system, and can adversely impact speech perception, which in turn hinders growth in social, emotional, behavioral and cognitive spheres, academic achievement, vocational choices, employment prospects

and economic independence (Ansari, 2004). As hearing impairment is a communication disability, individuals with hearing impairment are not able to convey their problems, needs, or experiences nor can their parents communicate thoroughly with them (Meadow, 1980). The deaf adolescents cannot learn what is expected of them in social interactions or to express their needs appropriately. This leads to emotional outbursts or frustration and strained social relationships among the deaf and the hearing (Freeman, Carbin, & Boese, 1981).

A paradigm shift has taken place in our understanding of the hearing impaired. The diagnosis of deafness in a child is no longer viewed as being closely associated with profound disability in totality including such typical outcomes as unrealized potential and a life of isolation. Hearing-impaired individuals are presently considered to be endowed with the capability to withstand adversity and to make a positive adaptation to their environment through interactions with parents, peers, school, and community. It is also shown that hearing impaired could be helped to enhance their resilience through appropriate psychological intervention.

For deaf children, the successful navigation towards resources in a world that challenges them with countless daily hassles and that may commonly deny, disable or exclude them is the key definition of resilience. For such successful navigation to occur, a range of protective resources and repertoires of skills fostered through challenging experiences of risk and responsibility must be promoted (Young, Green, & Rogers, 2008).

Resilience seems to involve inner protective factors and self-concept of the individuals has a more significant role to play in determining the resilience in them. The inner life of the hearing-impaired students may be richer than that of their hearing counterparts presumably due to the likelihood of their striving for compensation of their impairment. Self-concept may be viewed as an enabling skill in individuals and resilience may be construed as a positive self-concept under adverse conditions such as impairment.

The resilient-self may hence stand for the inner protective core of the resilient hearing impaired. The present study focuses on the resilient-self carved out of the intersection between resilience and the self.

Self-concept is multidimensional in nature and is constituted by material or physical self, social self, a spiritual self, and the pure ego. The multi-faceted hierarchical model of self-concept put forth by Shavelson et al. (1976) recognizes the existence of several specific domains of self-concept including physical, moral, personal, family, social, and academic/work self-concepts. The physical self-concept is construed as individuals' view of their health, appearance, physical strength, and sexuality. The social self-concept represents individuals' perception of themselves in relation to their peers apart from family and friends. The academic self-concept that has been consistently linked to positive academic outcomes, and it represents individuals' perception of their academic ability. The transpersonal self-refers to the perception of oneself transcending the diverse manifestations of the mind.

Resilience is a dynamic process encompassing positive adaptation within the context of significant adversity. The literature underscores the benefits and limitations of a resilience framework for integrating and applying the growing knowledge on adaptation in the context of deafness. Based on the resilience framework to understand the dynamics of developmental adaptation of hearing-impaired students at risk for normal holistic development, the present study has developed an evidence-based psychological intervention program to enhance resilient-self among the hearing impaired.

Young, Green and Rogers (2008) identified a few publications that empirically applied resilience as a framework conforming to the strict definition of resilience research in deafness. These include Charlson, Strong and Gold (1992), Charlson, Bird and Strong (1999), and Rogers, Muir, and Evenson (2003). Steinberg (2000) studied resilience from deaf adults' narratives of childhood and argues that deafness

serves as a useful model to study adaptation and resilience.

The findings of the various studies reviewed suggest that the psychological risks faced by the hearing impaired population are multifarious in nature (Bess, Dodd-Murphy & Parker, 1998; Fellingner et al., 2005; Gilman et al., 2004; Honey, Emerson, & Llewellyn, 2011; Kvam, Loeb, & Tambs, 2006; van Eldik, 2005) and it is plausible to consider deafness as providing a model for the study of adaptation and resilience. A reciprocal influence seems to exist between self-concept and adaptation: self-concepts of the individuals affect the adaptation of individuals and adaptation affects the self-concepts. In the hierarchy of the self-concepts, the physical, social, academic, and transpersonal self, seem to have special significance for development. In addition to these, academic achievement has a greater significance for students with hearing impairment. Various factors are found to contribute to the academic success of students with hearing impairment (Allen, 1986; Conrad, 1979; DiFrancesca, 1972; Lane & Baker, 1974; Lewis, 1996; Moog & Geers, 1985; Trybus & Karchmer, 1977).

The resilience framework amply suits the purpose of understanding the dynamics of self of the hearing impaired and to evolve an evidence-based psychological intervention to improve the resilient-self among the hearing impaired to further their developmental adaptation. Many studies suggest that improving the physical, social, academic, and transpersonal self-concepts in the hearing impaired who are at-risk for normal developmental adaptation would improve their inner protectors and lead them to adopt a resilient-self of themselves (Chamba et al., 1998; Ittyerah & Kumar, 2007; Jones, Renger & Kang, 2007; Mulcahy, 1998; Orzut, Maddock & Lee, 1999; Powers & Saskiewicz, 1998; Warren & Hasenstab, 1986; Williamson, 2007; Zaidman-Zait, 2007). The outcome of the resilient-self may reflect on their academic achievement as well.

The present study considers hearing impairment as an indicator of risk for successful adaptation and explores the possibility of

promoting resilience and wellbeing of the hearing-impaired students through psychological interventions. Specifically, the study focuses on resilient-self and attempts to enhance it among the hearing impaired through an appropriate psychological intervention targeted at improving the positive self-aspects of the students with hearing impairment. The present study views the individuals with hearing impairment as capable of benefiting from learning and attempts to enhance their resilience through appropriate psychological intervention. The objective of the present study is to examine whether it is possible to develop an appropriate intervention focusing on improving domain-specific self-concepts of the hearing impaired to enhance their self-concepts resulting in enhancement of their resilient-self.

## Method

### *Participants*

This study used purposive sampling. Two government schools and a private school were selected for recruiting participants in this study. The sample selected for the study included 109 students who were studying in the schools for the hearing-impaired, of which 53 were females, and 56 were males. Adopting random assignment of schools to one of the two experimental conditions, 52 students from one of the government schools selected for participation were assigned to the Experimental Group, and 57 students from the other two schools were selected to be included in the sample and were assigned to the Control Group. The participants were in the age group of 16 to 24 years and were studying in 11th and 12th standards. The mean age of participants in the Experimental Group was 18.26, and the standard deviation was 1.09. The mean age of participants in the Control Group was 18, and the standard deviation was 1.85.

The education level of fathers and mothers of the participants was found to be low. Majority of them have completed 6th to 10th grade of school. About 61.5% of the fathers of participants in the experimental group and 57.9% of the fathers of participants in the control group worked in elementary occupations. About 73% of the mothers of participants in the experimental

group and 56.1% of the mothers of participants in the control group were housewives. The experimental group and control group were evaluated on socioeconomic status and were found to be homogenous.

The study duly ensured all the ethical considerations during its execution. The ethical clearance for the research was duly obtained from the Internal Review Board of the Bharathiar University, Coimbatore, India before commencing the investigation. Adequate care was taken to ensure that the research procedures did not have any lasting harm or undesirable consequences for the individual participants. Institutional approval was sought from the schools where the participants were recruited. The investigator described the nature of this study in general terms to the authorities in the institutions and obtained permission to carry out the study on their students. Informed consent from participants and their parents were also obtained after briefly describing the nature of the study. Privacy and confidentiality were strictly protected for participants.

### **Measures**

The following instruments were used to obtain measures of variables selected for investigation in the present study:

*Physical Self Perception Profile (Fox & Corbin, 1989)*. The scale purports to assess the physical self-concept of the individual. It consists of 30 structured alternative questions. The participant is required to indicate which one of the two statements attached to the item describes them most appropriately. A high score on the scale indicates that the respondent entertains higher level of positive physical self-concept. Only 25 items from the scale were selected for use in this study. The Physical Self Perception Profile research demonstrates good reliability coefficient (alpha of .80-.95) and good test-retest stability over the short term (rs of .74-.89). The Cronbach alpha of the scale in the present investigation was found to be 0.96. Physical self-concept in this study was operationally defined as the score obtained by the participant on the Physical Self Perception Profile (Fox & Corbin, 1989), i.e., a measure

of multiple dimensions of physical self-esteem which comprises of five sub-domains: sports competence, physical condition, attractive body, physical strength, and physical self-worth.

*Social Self-concept Scale (Fitts, 1965)*. This scale purports to assess the respondents' social self-concept. This instrument was constructed, adapting items 73 to 90 of the Tennessee self-concept scale by Fitts. This is a Likert Type scale, and the response options provided to the participant range from 1 (strongly disagree) to 5 (strongly agree). The scale has both positive and negative items. A high score on the scale indicates that the respondent entertains highly positive social self-concept. Only 15 items from the scale were selected for use in the present study. The test-retest reliability estimates for the Tennessee self-concept scale range from 0.60 to 0.90. Correlations between the TSCS scales and those of the MMPI, Edwards Personal Preference Schedule, and several other measures are significant. The Cronbach alpha of the scale in the present investigation was found to be 0.52. Social self-concept was operationally defined as the score obtained by the participant on the Social Self-concept Scale (Fitts, 1965), i.e., a measure of how the self is perceived in relation to others.

*Academic Self-concept Scale (Reynolds, 1988)*. This scale assesses the academic self-concept of the respondent. It includes 40 items whose responses range from 1 (strongly disagree) to 4 (strongly agree). The scale has both positive and negative items. A high score on the scale indicates that the respondent experience a high level of positive academic self-concept. Only 37 items of the scale were selected for use in the present study. The authors of the academic self-concept scale report that the scale demonstrated good internal consistency reliability of 0.91. The Cronbach alpha of the scale in the present investigation was found to be 0.85. Academic self-concept was operationally defined as the score obtained by the participant on the Academic self-concept Scale (Reynolds, 1988), i.e., a measure of an academic facet of general self-concept.

*Transpersonal Self-concept Scale (Ragitha & Annalakshmi, 2012)*. This scale assesses transpersonal self-concept of the respondent. This instrument was exclusively developed for the present investigation. This is a Likert type scale with 14 items. The responses for the items of this scale ranges from 1 (strongly disagree) to 5 (strongly agree). A high score on the scale indicates that the respondent experiences a high level of positive transpersonal self-concept. The scale consists of 14 items.

The initial item-pool considered for developing the transpersonal self-concept scale included the items of the Spiritual Transcendence Scale (Piedmont, 1999) that significantly correlated with the sum-total scores of the scale in the pilot study of this investigation. Furthermore, several new items that were relevant to the concept of the transpersonal self-concept were generated through brainstorming. The items so generated were based on the four areas, namely, the purpose of prayers, universality, connectedness, and death. All the items included in the item-pool for constructing the transpersonal scale so generated were scanned for face validity and were submitted to a panel of experts in psychology that consisted of three psychologists for confirming the face validity of the items to assess transpersonal self-concept. As the target population was a Malayalam speaking population, the items initially written in the English language were translated into Malayalam under the guidance of a panel of three psychologists and three Malayalam teachers. The face validity of the items was found to be adequate. The Cronbach alpha of the scale in the present investigation was found to be 0.75. Transpersonal self-concept in this study was operationally defined as the score obtained by the participant on the transpersonal self-concept scale (Ragitha & Annalakshmi, 2012), i.e., a measure of a motivational drive to create personal meaning in one's life.

*Socioeconomic Status Scale (Vendal, 1981)*. The scale assesses the socioeconomic status of the subject. The scale consists of 20 items. The items pertain to the educational and occupational status of the parents of the respondent, the material possessions, social behavior of the

attendant, economic status of the family in terms of income of the parents and income from other sources. A high score on the scale indicates a high socioeconomic status of the respondent.

Academic performance record relating to the marks earned by the participants in examinations was also used in this study. Academic achievement in this study was operationally defined as the marks obtained by the participant on the academic performance record, i.e., the average marks earned by the participant in all subjects in two examinations conducted in an academic year in the school. The marks of the first-term examinations were taken as a baseline measure, and the marks of third-term examinations were taken as the post-intervention measure. In addition to the measures described above, a measure of the resilient-self was obtained as the sum of the scores obtained on physical self-perception profile (Fox & Corbin, 1989), social self-concept scale (Fitts, 1965), academic self-concept scale (Reynolds, 1988), transpersonal self-concept scale (Ragitha & Annalakshmi, 2012), and the academic performance record.

### **Procedure**

The study adopted a two-group pretest-posttest experimental design. Before administering the intervention program, baseline measures of self-concepts were obtained from the participants in the experimental group as well as the control group by administering them the instruments chosen for the study. The intervention program was delivered to the participants assigned to the experimental group after obtaining the baseline measures of the variables from the participants in both the experimental group and the control group.

The investigator had adequate training and practice by formally undergoing a course on Indian sign language and was hence equipped to deliver the intervention to the hearing impaired. The investigator delivered the intervention to the participants in the experimental group in weekly one-hour sessions for fifteen weeks.

### **The Intervention**

The intervention employed in this investigation was developed on the principles

of psychology relating to self and resilience for which adequate evidence is available in the literature. The strategies adopted for achieving the objective of the intervention included conceptual teaching, storytelling, self-reflection, and writing journal/maintaining diary.

Firstly, the intervention included classroom conceptual teaching on self-concept, elucidating abstract ideas relating to the concept of global self-concept, and domain-specific self-concepts, and resilient-self. This involved introducing the concepts pertaining to the self. After teaching the concepts, the students were encouraged to apply the concepts explained to them, and to appreciate the implications the self-concepts have for their positive wellbeing as well as growth and development.

Secondly, the intervention included storytelling as a means of illustrating the concepts being introduced to the participants. The storytelling technique was facilitating communication of the messages needed for the students. Since the messages were camouflaged in the stories, they were interesting to the students and did not arouse resistance in the listeners. The stories told in the intervention included success stories of people who were hearing impaired, stories that boosted the value of physical self-concept, social self-concept, academic self-concept, transpersonal self-concept, and resilient-self. After telling the stories, the students were encouraged to contemplate on the stories and draw the moral of the stories told to them. They were encouraged to consider the implication the messages of the stories have for them to improve their wellbeing, growth, and development.

Thirdly, the intervention involved introspection and self-reflection as a means of enabling the participants in the intervention to learn through experiential learning. Reflection or "critical reflection" connotes an activity or process in which an experience is recalled, considered, and evaluated, usually in relation to a broader purpose. Reflection is a response to experience and involves the conscious recall and examination of the experience as a basis for evaluation and decision-making and as a

source for planning and action (Bartlett, 1990). Reflection helps moving beyond a primary concern with a matter of fact description towards considering "how to" questions and asking "what" and "why" questions that regard instructions not as ends in themselves, but as part of broader educational purposes.

The intervention also involved journal writing and maintaining diary by the participants for developing critical reflection during the intervention sessions. The objectives of the journal writing included providing a record of the significant learning experiences that have taken place during the sessions, helping the participants come in touch and keep in touch with the self-development process that is taking place for them, providing the participants with an opportunity to express themselves in a personal and dynamic way for their self-development, fostering a creative interaction between the participant and the self-development process that is taking place, and between the participant and other participants who are also in the process of self-development, and between the participant and the facilitator whose role is to foster such development (Bailey, 1990; Powell, 1985).

After completion of the intervention program, measures of self-concepts were obtained from the participants in the experimental group as well as the control group by administering them the instruments selected for the purpose. The academic achievement of the participants in the experimental and the control group was obtained from the school records. The sum of the scores obtained on physical self-perception profile (Fox & Corbin, 1989), social self-concept scale (Fitts, 1965), academic self-concept scale (Reynolds, 1988), transpersonal self-concept scale (Ragitha & Annalakshmi, 2012), and the academic performance record were taken to be resilient-self.

The study formulated hypotheses about the possible outcome of the intervention relating to resilient-self keeping in mind the nature and dynamics of the interaction provided to the participants for the development of self in them. The hypotheses envisaged

that the physical, social, academic, and transpersonal self-concepts of the participants in the intervention will significantly differ from those of the participants who had not attended the intervention immediately after the former had undergone the intervention and that the former will have more enhanced positive self-concepts in the four self-domains compared to the latter. The hypotheses also envisaged that the enhancement of self-concepts in the four domains just mentioned would lead to enhancement of academic achievement and the resilient-self reflecting enhanced competence for developmental adaptation on the part of the participants who had undergone the intervention.

To test the hypotheses relating to the efficacy of the intervention on enhancing physical self-concept, social self-concept, academic self-concept, transpersonal self-concept, academic achievement, and resilient-self, Independent samples t-test, Mann Whitney U test, and ANOVA was carried out.

### Results

The scores of the subjects obtained in the various scales prior to the psychological intervention (scores at the baseline) were subtracted from the scores of the subjects obtained in the second administration of the various scales after concluding the intervention (post-intervention scores) to arrive at the increment scores of the subjects that would indicate the improvement in measure of the variable achieved by the participants. The greater the increment score, the higher is the progress made by the individual subject on the variable concerned. These increment scores of the subjects on the various measures were subjected to statistical analyses, and the results are presented below.

A significant difference was found to exist in the increment of physical self-concept among females ( $M=41.41$ ,  $SD=16.24$ ) and males ( $M=8.13$ ,  $SD=7.86$ ) in the experimental group,  $t(50) = 7.55$ ,  $p=.00$ ,  $r^2=0.53$ . Hence it was essential to control the effect of gender in the analysis. So, a two-way analysis of variance was conducted to find the difference in the change in physical self-concept. Results of ANOVA showed

that the increment in physical self-concept was higher for the participants in the experimental group compared to the participants in the control group;  $F(1,105) = 138.27$ ,  $p=.00$ ,  $\eta^2=.57$  between the experimental group ( $M= 31.81$ ,  $SD= 20.85$ ) and control group ( $M= -0.49$ ,  $SD= 3.63$ ) was significant. This showed that the intervention had a positive effect on the physical self-concept of the experimental group.

The females ( $M=9.65$ ,  $SD=9.71$ ) and males ( $M=13.60$ ,  $SD=5.19$ ) did not differ in the increment in social self-concept as a result of the intervention,  $t(50) = -1.49$ ,  $p=.14$ ,  $r^2=.04$ . Hence both the female and male participants were grouped into one group for analysis. Mann Whitney U Test was used to find the effect of the intervention on social self-concept. The results of the test were in the expected direction and significant,  $z = -7.73$ ,  $p=.00$ ,  $r=-.47$ . There was enough evidence to conclude that there was a difference in the median grades of the experimental group and control group in social self-concept. The experimental group had a higher level of social self-concept compared to the control group. Hence it was concluded that the intervention has a positive effect on the social self-concept of the experimental group.

The females ( $M=26.35$ ,  $SD=2.49$ ) and males ( $M=22.60$ ,  $SD=2.09$ ) did not differ in the increment in academic self-concept as a result of the intervention,  $t(50) = .90$ ,  $p=.37$ ,  $r^2=.02$ . Hence, female and male participants were treated as a single group for analysis. The increment in academic self-concept was higher in the experimental group as compared to the control group. The results of the test were in the expected direction and significant,  $z = -8.82$ ,  $p = .00$ ,  $r=-.84$ . There was enough evidence to conclude that there is a difference in the median grades of the experimental group and control group in academic self-concept. It was found that the experimental group had a higher level of academic self-concept. Hence it was concluded that the intervention had a positive effect on the academic self-concept of the experimental group.

The females ( $M=22.76$ ,  $SD=9.79$ ) and males ( $M=20.33$ ,  $SD=10.41$ ) did not differ in

the increment in transpersonal self-concept,  $t(50) = 1.07$ ,  $p = .42$ ,  $r^2 = .02$ , as a result of the intervention. Hence, female and male participants were treated as a single group for analysis. The results of the test were in the expected direction and significant,  $z = -8.27$ ,  $p = .00$ ,  $r = -.79$ . There was a difference in the median grades of the experimental group and control group in transpersonal self-concept. It was found that the experimental group had a higher level of transpersonal self-concept when compared to the control group. It was concluded that the intervention had a positive effect on the transpersonal self-concept of the experimental group.

Females ( $M = 12.00$ ,  $SD = 4.78$ ) and males ( $M = 14.53$ ,  $SD = 5.78$ ) did not differ in the increment in academic achievement,  $t(50) = -1.63$ ,  $p = .11$ ,  $r^2 = .05$ , as a result of intervention. Hence, female and male participants were treated as a single group for analysis. It was found that the experimental group ( $M = 12.71$ ,  $SD = 5.13$ ) and control group ( $M = 2.19$ ,  $SD = 0.92$ ) differed from each other about academic achievement;  $t(107) = 15.22$ ,  $p = .00$ ,  $r^2 = .68$ , of academic achievement was significant. The experimental group had higher academic achievement increment score than the control group. So, it was concluded that the intervention had a positive effect on the academic achievement of the experimental group.

A composite score of self-concept and academic achievement was formed to develop a score of resilient-self. For this purpose, the scores obtained by the participants on physical self-concept, social self-concept, academic self-concept, transpersonal self-concept, and academic achievement were converted to standard scores ( $Z$ ) and combined to obtain a single score for each subject on resilient-self. As the scores were found to follow a normal distribution, Independent Sample  $t$ -test was carried out on the scores on the variable resilient-self. It was found that  $t(107) = 18.35$ ,  $p = .001$ ,  $r^2 = .76$ , of resilient-self was significant. The experimental group ( $M = 0.79$ ,  $SD = 0.58$ ) and control group ( $M = -0.73$ ,  $SD = -0.24$ ), hence, differ from each other regarding resilient-self. As the experimental group has higher resilient-self

increment score than the control group, it was concluded that the intervention had a positive effect on the resilient-self of the experimental group.

### Discussion

The results of the analyses revealed that the psychological intervention confirmed all the hypotheses tested in this study. The intervention was found to improve the resilient-self of the participants by enhancing the physical, social, academic and transpersonal self-concepts, and the academic achievement of the participants. It is concluded that it is plausible to enhance resilient-self of the hearing-impaired students by enhancing their physical, social, academic, and transpersonal self-concepts, and academic achievement through appropriate intervention. The present intervention done in the case of the hearing impaired seems to be applicable to other populations for improving resilience with adequate modifications needed to suit the population and the context.

The psychological intervention focused on self-concept enhanced resilient-self among the hearing-impaired students. Enhancing self-concept leads to the improvement of academic achievement among the target group. An important factor contributing to the success of the present intervention in infusing reorganization of self through self-regulation is the effectiveness in communicating the principles of self by the first author who was trained in sign language. The entire intervention was delivered using sign language and met the participants at their levels of communication skills. As the transactions were done in the language of the hearing-impaired, the participants found the program interesting and elucidated the information they needed to bring about a positive change in themselves. The rapport established by the investigator had added to the quality of the interventions provided to the participants and contributed to the success of the intervention with the hearing-impaired participants.

The intervention had a positive effect on the physical self-concept of the participants in the experimental group. The intervention stressed on diminishing the negative thoughts that the



participants had about their sensory impairment. The intervention included narration of stories and tales that focused on the skills and special capabilities present in disabled and sensory impaired individuals. This helped in reducing the negative body image that the participants had before participating in the study. This positively reflected in the physical self-concept scores of the participants after the intervention.

The intervention to enhance the social self-concept of the students with hearing impairment was found to be highly effective. The students were taught how to interact, socialize, and be friendly. The students were taught to move across the barriers of communication that hinders their interactions with the hearing community. The intervention focused on good manners, forgiveness and effective ways of interpersonal interactions. This helped the participants perceive themselves as better equipped to handle social situations than how they were before their participation in the intervention.

The intervention had enhanced the academic self-concept of the participants in the experimental group. Generally, the average academic achievement of students with hearing impairment is found to be considerably below that of their hearing peers (Traxler, 2000; Powers, 2003). The intervention attempted to train participants to develop essential study skills and to use them effectively to benefit maximum from the existing educational system of which they were a part. The participants were taught various study skills, which included reading skills, study time management, preparing for study, goal setting, group study, study habits, and goal setting. The journal maintained by the participants provided evidence that they were adequately utilising the academic skills taught during the intervention. Study skills training was a new experience for the participants. The enhancement of academic skills because of the intervention had a positive influence on their academic performance. The intervention also focused on identifying mentors in their lives, particularly from among the teachers in their school.

The intervention to enhance transpersonal self-concept focused on understanding the importance of prayers and understanding the concepts of connectedness and universality. The participants' transpersonal self-concept was not well developed before the intervention. The intervention helped them to understand God, and that contributed to increasing their transpersonal self-concept. Though the participants had a concept of God, they were not aware of the importance of prayers to connect to God. The intervention that introduced spiritual stories to the participants helped them to develop a more concrete idea of God. The concept of connectedness was explained to the students. The students who believed that they and their hearing peers were very different from each other developed a new idea of connectedness with others around them after the intervention. Participants revealed that they engaged in daily prayers and meditation that helped them feel more peaceful and resulted in better wellbeing than what they had before the intervention.

The present study adopted the definition of resilience as attaining good outcomes despite having a high-risk status. The participants in the present study had severe to a profound hearing loss, which is a high-risk factor. As they are students, the outcome is measured in academic performance. Academic achievement can be viewed as an objective positive outcome in the context of risk. So, an improvement in academic performance was seen equivalent to an enhancement in resilience. The academic achievement of students is dependent on many factors. The time devoted to studies, the method of studying, the study environment, attitude towards teachers and school are some of the elements focused on the intervention program targeting to improve academic achievement in the participants. The findings show that the hearing-impaired students had a higher academic achievement after the intervention than the academic achievement they had before the intervention. This finding may be attributed directly to the training provided on improving academic skills. The improvement in academic achievement witnessed in the participants may

also be due to the overall effect of the intervention on the self-concepts of the participants.

The effect of the intervention has manifested in the changes occurring in different domains of self directly addressed in the intervention. However, it is also seen that the intervention has ultimately resulted in developing a resilient-self in the participants though the intervention had directly addressed only the other self-concepts. The resilience of the participants emerging after the changes have been initiated in certain self-concepts need to be explained. It seems plausible that the intervention had effected changes in the physical, social, academic, and transpersonal self-concepts conducive for developmental adaptation. The intervention has promoted self-concepts and in their reorganization in the holistic self-identity. As skills reorganized contribute to riding a bicycle, the various aspects of the self-concept have got reorganized thanks to the experience and learning accrued in the intervention. Since the participants are exposed to multiple risks at present, the reorganization of the skills leads to self-regulation that furthers their capabilities to confront the risks for development in the academic setting effectively.

The findings imply that sensory impairment need not and does not preclude adequate adaptation to the environment, and the individuals with any impairment seem to be endowed with potentialities for appropriate development on par with other individuals without impairment. It is possible to design psychological intervention suitable to stimulate and realize the manifestation of resilience among individuals with impairment.

The success of the intervention also owes to the instructional methods used in the intervention program. Information and knowledge were provided to the participants through conceptual teaching, storytelling, and self-reflection. Of course, conceptual teaching methods are not new as a pedagogical method and are still in use in modern teaching. However, the storytelling and reflection techniques, though traditionally used, are slowly waning in the classrooms in the contemporary days. The effectiveness of these methods in this intervention implies that these

methods can be effectively employed to enhance the quality of researches that involve designing and delivering interventions. In addition to these, it seems that delivering the intervention for the hearing-impaired is facilitated if the program is delivered through sign language and research investigators may adopt the same mode of communication used by the hearing-impaired if they desire to impart intervention to them.

The present study for developing resilient-self was carried out on late adolescents and young adults who were hearing-impaired. The participants in the investigation were studying in grades eleventh and twelfth, and their age group ranged from 16 to 24 years. Most of the participants were aged 18 years. Both male and female students participated in the intervention. As assessed by the socioeconomic scale the participants in the sample belong to low socioeconomic families. The participants in the study were from an impoverished environment and seemed to be at risk for developmental adaptation. It appears that the subjects who participated in this investigation have been exposed to multiple risks including sensory impairment and underprivileged environment. It is appropriate to apply the principles of resilience for this group since it would be very beneficial to them to improve their resilience and raise the level of their wellbeing. These characteristics of the sample must be kept in mind while attempting to generalize the findings of the study to the other populations.

The present study has implications for resilience theory and practice. It adopts the evidence-based principles of resilience suggested by studies on hearing impaired individuals to design a psychological intervention program aiming at enhancing resilience among the hearing impaired. The intervention can be backed by evidence accumulated in the literature on the resilient hearing-impaired. The intervention can be taken as a model to formulate intervention programs for the hearing-impaired. Thus, the study contributes to both theory and practices relevant to the target group herein studied by providing a means to reach out to the hearing impaired and to help them enhance their inner resources of resilience.

The present study can also be replicated in other cultures and populations. The intervention module that was used in this research was developed specifically for this research. It can be modified for use with individuals with other physical disabilities. A scale for measuring resilient-self can be developed based on the principles of this study. Further, the theory or concept of resilient-self can be explored in future research using a qualitative approach.

### Limitations

The sample characteristics are peculiar to the participants in this study, and this may be regarded to impose limitations on generalizing the finding. The population in Kerala has their unique characteristics. The population is generally believed to be simple, studious, and venturesome for migrating to places. Some of the cultural resilient disposition might have had some effect on the present findings. It will be interesting to replicate the present investigation with other ethnic populations in India, and also in other countries.

Transpersonal self is problematic to measure. The tools developed by other investigators to assess the aspects of transpersonal self-concept of other cultural population have failed to be valid for use with the present sample. In the present study, an ad-hoc-scale was developed using a limited sample size. The findings of the present study may be appreciated within the limitations herein specified.

### References

- Allen, T. E. (1986). *Patterns of academic achievement among hearing impaired students*. In A. N Schildroth & M. A. Karchmer (Eds.), *Deaf Children in America* (pp. 161-206). CA: College Hill Press.
- Ansari, M. S. (2004). Screening programme for hearing impairment in newborns: A challenge during rehabilitation for all. *Asia Pacific Disability Rehabilitation Journal*, 15(1), 83-89.
- Bailey, K.M. (1990). *The use of diary studies in teacher education programmes*. In J. C. Richards & D. Nunan (Eds.), *Second Language Teacher Education* (pp. 215-226). New York: Cambridge University Press.
- Bess, F. H., Dodd-Murphy, J., & Parker, R. A. (1998). Children with minimal sensorineural hearing loss: Prevalence, Educational Performance, and Functional Status. *Ear and Hearing*, 19, 339-354.
- Chamba, R., Ahmad, W.I.U., & Jones, L. (1998). The education of Asian deaf children. In S. Gregory, P. Knight, W. McCracken, S. Powers & L. Watson, *Issues in Deaf Education*, (pp. 38-45). London: David Fulton Publishers.
- Charlson, E., Bird, R. L., & Strong, M. (1999). Resilience and success among deaf high school students: Three case studies. *American Annals of the Deaf*, 144, 226-235.
- Charlson, E., Strong, M., & Gold, R. (1992). How successful deaf teenagers experience and cope with isolation. *American Annals of the Deaf*, 137(3), 261-270.
- Conrad, R. (1979). *The Deaf School Child*. London: Harper and Row.
- DiFrancesca, S. (1972). *Academic achievement test results of a national testing program for hearing-impaired students*. Washington, DC: Office of Demographic Studies, Gallaudet College.
- Fellinger, J., Holzinger, D., Dobner, U., Gerich, J., Lehner, R., Lenz, G., & Goldberg, D. (2005). Mental distress and quality of life in a deaf population. *Social Psychiatry and Psychiatric Epidemiology*, 40, 737-742.
- Fitts, W. H. (1965). *The Tennessee Self-Concept Scale*. Nashville, Tennessee: Counsellor Recording and Tests.
- Fox, K. R., & Corbin, C. D. (1989). The Physical Self-Perception Profile: Development and preliminary validation. *Journal of Sport and Exercise Psychology*, 11, 408-430.
- Freeman, R. D., Carbin, C. F., & Boese, R. J. (1981). *Can't your child hear? A guide for those who care about deaf children*. Baltimore: University Park Press.
- Gilman, R., Easterbrooks, S. R., & Frey, M. (2004). A preliminary study of multidimensional life satisfaction among deaf/hard of hearing youth across environmental settings. *Social Indicators Research*, 66, 143-164.
- Hearing Impairment. (2007). In *Dorland's Medical Dictionary for Health Consumers* (31st ed.). Philadelphia: Saunders.
- Hearing impairment. (2009). In *Mosby's Medical Dictionary* (8th ed.). US: Elsevier.
- Hearing impairment. (2007). In *The American Heritage Medical Dictionary*. Boston, MA: Houghton Mifflin.
- Honey, A., Emerson E., & Llewellyn, G. (2011). The mental health of young people with disabilities: Impact of social conditions. *Social Psychiatry and Psychiatric Epidemiology*, 46(1), 1-10.
- Ittyerah, M. & Kumar, M. (2007). The actual and ideal

- self-concept in disabled children, adolescents, and adults. *Psychology and Developing Societies*, 19, 81–112.
- Jones E. G., Renger R., & Kang Y. (2007). Self-efficacy for health-related behaviors among deaf adults. *Res Nurs Health*, 30(2), 185-92.
- Kvam, M. H., Loeb, M., & Tambs, K. (2006). Mental health in deaf adults: Symptoms of anxiety and depression among hearing and deaf individuals. *Journal of Deaf Studies and Deaf Education*, 12(1), 1–7.
- Lane, H., & Baker, D. (1974). Reading achievement of the deaf: Another look. *The Volta Review*, 76, 488-499.
- Lewis, S. (1996). The reading achievements of a group of severely and profoundly hearing-impaired school leavers educated within a natural aural approach. *Journal of British Association of Teachers of the Deaf*, 20(1), 1–7.
- Meadow, K. (1980). *Deafness and child development*. Berkeley: University of California Press.
- Moog, J. S., & Geers, A. (1985). EPIC: A program to accelerate academic progress in profoundly hearing-impaired children. *The Volta Review*, 87, 259 –277.
- Mulcahy, R.T. (1998). *Cognitive self-appraisal of depression and self-concept: Measurement alternatives for evaluating affective states*. (Unpublished doctoral dissertation). Gallaudet University, Washington. D. C.
- Obrzut, J. E., Maddock, G. J., & Lee, C. P. (1999). Determinants of self-concept in deaf and hard of hearing children. *Journal of Developmental and Physical Disabilities*, 11(3), 237–251.
- Piedmont, R. L. (1999). Does spirituality represent the sixth factor of personality? Spiritual transcendence and the Five-Factor Model. *Journal of Personality*, 67, 985–1013.
- Powell, J. P. (1985). Autobiographical learning. In D. Boud, R. Keogh and D. Walker (Eds.), *Reflection: Turning Experience into Learning* (pp. 41-51). London: Kogan.
- Powers, S. (2003). Influences of student and family factors on academic outcomes of mainstream secondary school deaf students. *Journal of Deaf Studies and Deaf Education*, 8(1), 57 – 78.
- Powers, G. W., & Saskiewicz, J. A. (1998). A comparison study of educational involvement of hearing parents of deaf and hearing children of elementary school age. *American Annals of the Deaf*, 143, 35–39.
- Reynolds, W.M. (1988). Measurement of academic self-concept in college students. *Journal of Personality Assessment*, 52(2), 223-240.
- Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Validation of construct interpretations. *Review of Educational Research*, 46, 407-441.
- Steinberg, A. (2000). Autobiographical narrative on growing up deaf. In P. E. Spencer, C. J. Erting, & M. Marschark (Eds.), *The deaf child in the family and at school: Essays in honor of Kathryn P. Meadow-Orlans* (pp. 93–108). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Trybus, R. & Karchmer, M. (1977). School Achievement Scores of Hearing-Impaired Children: National Data on Achievement Status and Growth Patterns. *American Annals of the Deaf*, 122, 62-69.
- Van Cleve, J. V. (Ed.) (1987). *Gallaudet Encyclopedia of Deaf People and Deafness*. New York: McGraw Hill.
- Van Eldik, T. (2005). Mental health problems of Dutch youth with hearing loss as shown on the Youth Self Report. *American Annals of the Deaf*, 150(1), 11-16.
- Vendal, N. (1981). A study of achievement in school in relation to certain social organizational and individual factors. *Psy. Stu.*, 25(1), 9-12.
- Warren, C., & Hasenstab, S. (1986). Self-concept of severely to profoundly hearing-impaired children. *Volta Review*, 88, 289-295.
- Williamson, C. (2007). *Black Deaf Students: A Model for Educational Success*. Washington, DC: Gallaudet University Press.
- Young, A., Green, L., & Rogers, K (2008). Resilience and Deaf Children: A Literature Review, *Deafness & Education International*, 10(1), 40-55.
- Zaidman-Zait, A. (2007). Parenting a child with a cochlear implant: A critical incident study. *Journal of Deaf Studies and Deaf Education*, 12, 221–241.

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