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Adaptive Emotional Abilities of Adolescents with Hearing Impairment

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The present study was conducted to explore the levels of adaptive emotional abilities of adolescents with hearing impairment as well as to find the roles of socio-demographic variables in the development of their emotional abilities. For this purpose an indigenous instrument, the Adaptive Emotional Abilities Scale was developed based on Emotional Ability Model proposed by Mayer and Salovey (1997). A comparative sample of 1050 hearing adolescents was also recruited. The scale was administered to 469 randomly selected adolescents with hearing impairment and 1050 hearing participants between the age range of 12 and 18 years. The instrument was found to have acceptable level of validity and reliability. Proportion Consensus Method (Barchard & Russel, 2006) was used for scoring. Results showed that hearing participants were significantly higher on Adaptive Emotional Ability Scale than the adolescents with hearing impairment. On the other hand, it was found that socio-demographic variables; such as access to hearing assessment and speech services, time of intervention, presence of hearing impaired family member, preferred language of family, and preferred language of the participants themselves regardless of their hearing loss; play important roles in developing the adaptive emotional abilities of the adolescents with hearing impairment. The results clearly indicated that hearing impairment itself is not the only reason of poor performance of the adolescents with hearing impairment.

Keywords: Hearing impairment, adaptive emotional abilities, consensus responses, adolescents

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The term Hearing Impairment (HI) refers to the hearing loss ranging from hard-of hearing to total deafness. According to World Health Organization (2014) the individuals with HI can be deaf or hard of hearing. Moores (2001) differentiated the terms deaf and hard of hearing. A deaf person is the "one whose hearing is disabled to an extent that precludes the understanding of speech through the ear alone, without or without the use of a hearing aid" (p. 9). While hard of hearing person is "one whose hearing is disabled to an extent that makes difficult, but does not preclude, the understanding of speech through the ear alone, with or without a hearing aid" (Moores, 2001, p. 9).

Initially it appears simple to understand the concept of hearing impairment as it can be diagnosed through medical procedures. But the impact of being hearing impaired is larger than the problems related to hearing difficulties only. It also brings many social and emotional difficulties along the communications problems (Kirk, Gallaghar, & Anastisiow, 2003). Individuals with HI vary largely in their communication and social skills due to their nature and degree of hearing loss, proper assessment, time of intervention and family environment. Recent studies have shown that deaf individual's social emotional adjustment is poorer than that of their hearing counterparts (Cambra, 2005). When hearing impaired children without overt or serious problems are studied they are found to exhibit characteristics of rigid egocentricity, absence of inner controls, impulsivity and suggestibility (Kirk et al., 2003; Moores, 2001). Sinott and Jones (2005) also reported the high incidence rate for emotional disturbance and behavioral disorders among the students with HI.

Cambra (2005) compared the feelings and emotions of adolescents with HI using a sentence completion task examined their feelings, preferences, desires for change as well as their perception of the consequences of being deaf. The results indicated non significant differences between the deaf and hearing adolescents in terms of their ability to understand or express their feelings of sadness or when expressing what they like most. However, significant differences were found in what made them happiest and the things they would like to change. Degree of hearing loss, gender, and age were related to these differences in understanding their feelings. In the same way Dyck, Farrugia, Shochet, and Holmes-Brown (2004) investigated whether children with a sensory disability had consistent delays in developing emotional recognition and understanding. They concluded that children with HI had significant problems with emotion recognition in comparison to their hearing counterparts. Suarez (2000) concluded that children with HI lack empathy, social perception, role taking

ability, social problem solving skills, moral development, social attribution and impulse control. Rhys-Jones and Ellis (2000) did not provide any evidence for the hypothesis following from previous studies that the deaf adolescents were poor on social reasoning as compared to the hearing participants. However, they emphasized the full access into the world of social awareness, understanding and share of emotions on the part of adolescents with HI. Similarly Gray, Hosie, and Russell (2007) asked young (5-7 years) as well as older deaf (11-13) students to choose the appropriate emotions for the central character in one of their stories. Young hearing children performed significantly better than the deaf children and hearing children were using similar categories to understand emotions but hearing impaired children seem to have a developmental delay, which Gray et al. (2007) tied to the social experiences of communicating about emotions for hearing impaired children with hearing parents.

The regulation of emotional abilities is linked to the theory of emotional intelligence, which is well understood by academic community at present. Looking at history the literature reveals that Thorndike (1920), Wechsler (1940) and Gardner (1983) indicated and elaborated the traditional construct of intelligence in broader terms and included non-intellective social components. Beginning the 1990,s progress was seen in the field of emotional intelligence. Salovey and Mayer (1990) developed a theory of emotional intelligence on the basis of an intensive literature review. They addressed many controversies related to the concept "emotional intelligence" and defined it in terms of ability.

Mayer and Salovey (1997) defined emotional intelligence, "as the ability to perceive emotions, to access and to generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth" (P.10). However, the term emotional intelligence became popular with the advent of the Goleman's famous book published in (1995). Goleman (1995) and Bar-On (1997) defined the term broadly equated emotional intelligence with good social behavior. Given this brief history it seems emotional intelligence is defined differently in literature. Some researchers do not even agree that it is related to the general intelligence (Jordan, Ashkanasy, Hartel & Hooper, 2002). Locke (2005) considered the concept of emotional intelligence as a misinterpretation of the term intelligence and he suggested that emotional intelligence should be re-labeled as a skill.

In Pakistan research on children with HI has found that their emotional development is not similar to their hearing peers. They have been found to have poor self-esteem (Hussain, 2003), are resentful and

do not trust others (Waheed, 2007), and have low achievement levels and appear to be immature (Roohi & Bano, 1994). Moreover, Wahid and Ashfaq (2000) reported that only 20% hearing impaired children can understand and respect the feelings and emotions of others.

Almost all of the above mentioned studies concluded that the children with HI have poor emotional skills and abilities. The reason for their poor emotional abilities may be related to other factors such as early hearing assessment and intervention, hearing status of the family members, level of hearing loss, and mode of communication use by the family with deaf persons. The arrival of a hearing impaired child may bring about many difficulties especially communication gap to the family. According to Moores (2001) majority of hearing parents are unskilled in dealing and recognizing the needs of the children with HI; therefore the intervention in form of amplification, ontological surgery, cochlear implantation, or some other treatment may delay which leads to social and cognitive incompetence (Smith, Shearer, Hildebrand, & Camp, 2014). The parents do not prefer sign language to abridge the communication gap and pressurize the children to speak which makes the children stressful and socially aloof (Hussain 2003). Bailly, Dechouldelenclave, and Lauwerier (2003) concluded that hearing impaired children of deaf parents show more typical emotional development and emotional adjustment when compare to hearing impaired children of hearing parents because they know the complexity and special needs of hearing impairment to function better in various settings of society. Attabadi, Yousafi, and Moradi (2013) as well as Arroyo, Nevarez, Segrin, and Harwood (2012) reported a significant relationship between family communication of hearing impaired adolescents with emotional intelligence and social skills.

The above mentioned socio-demographic variables have not been investigated with the adaptive emotional abilities among adolescents with HI in Pakistan so far. Therefore, this study would provide comparison along the adaptive emotional abilities of adolescents with HI and their hearing counterparts and also highlighted the role of socio-demographic variables in relation to hearing impairment in the development of emotional abilities. These variables are access to hearing assessment and speech services, time of intervention, presence of a hearing impaired family member, preferred language of family, preferred language of the participants themselves, and levels of hearing loss.

The major objectives of the study were to make comparison between the levels of adaptive emotional abilities of the hearing participants and the group with HI. It was also intended to find the

role of socio-demographic variables that may contribute in predicting the adaptive emotional abilities of the adolescents with HI.

Following hypotheses were formulated for present study:

1. There is a difference between the level of adaptive emotional abilities of participants with HI and their hearing counterparts.
2. Access to hearing assessment and speech services, time of intervention, presence of a hearing impaired family member, preferred language of family, preferred language of the participants themselves and levels of hearing loss contribute in predicting the adaptive emotional ability of the participants with HI.

Method

The present study was conducted in two phases. Phase I comprised development of instrument and Phase II was comprised of hypotheses testing.

Phase-I: Development and Validation of Adaptive Emotional Abilities Scale

The scale development and validation of Adaptive Emotional Abilities Scale was carried out in three stages. At the first stage, 199 items were formulated with the help of relevant literature related to the main four domains of the Emotional Ability Model (EAM). These are emotional recognition, emotional facilitation, emotional understanding and emotional management. Brief description of the domains is given as follows:

Emotional Recognition. This domain assesses the respondent's ability to perceive or recognize his/her as well as other's emotions from the face expression, images and landscapes.

Emotional Facilitation. It focuses on how emotions facilitate our cognitive system to adapt to the situation. Cognitive system means reasoning, decision-making and creativity. It measures the ability to generate, use and feel emotions as necessary to communicate feeling.

Understanding Emotions. It refers to the extent that how well the test taker understands the complexities of emotional meanings, emotional transition and emotional situations. This branch includes

the ability to label emotions, to recognize that there are groups of related emotional terms. Knowledge of how emotions combine and change over time is important in one's dealings with the other people and in enhancing one's self-understanding.

Managing Emotions. Managing emotions means that, at appropriate times one feels the feeling rather than repressing it, and then uses the feeling to make better decisions (Mayer, Salovey, & Caruso, 2002).

The content validity of Adaptive Emotional Abilities Scale (AEAS) was estimated by 15 experts of relevant field comprising ten clinical psychologists and five Ph.D experts in the relevant field. Their responses were recorded against each item on three points scale with the options: *yes, to some extent*, and *no*. For example, on the ability of emotional recognition it was asked does item no.1 measure the ability to recognize the emotions from facial expression of the respondents? Their responses were tabulated in percentages on each option. The items less than 70% *yes* responses of the experts were considered less valid and deleted from the scale. After this procedure 168 items were identified. Afterwards these 168 items were presented to five experts of related fields who assessed the content validity, qualitatively against two options; that is; do all the items of the instrument relate to the four emotional abilities and the sub-scales sample the content area appropriately? Are the statements of the instruments are mutually exclusive with clear intended meanings. Finally 165 items reached the acceptable level according to the Emotional Ability Model (Mayer & Salovey, 1997).

At the second stage, these items were administered to a sample comprised of 30 adolescents with hearing impairment and their 100 hearing counterparts. It was decided to select those items that rated consensus within the range of 65% to 80% (Hartnett, 2011). In order to obtain consensus the responses of both of the samples, frequencies were tabulated. These frequencies helped in determining how many people responded to each of the alternatives for a given item in percentages. Items that got consensus according to the above mentioned range on any option on AEAS were accepted. The results of pilot study showed different responses of two samples. Descriptive analysis of the responses of participants with HI revealed that none of the item falls in to the above mentioned range; therefore appropriate items were selected according to Consensus Responses (CRs) of hearing respondents.

At third stage the remaining 136 items of AEAS were administered on 469 participants with HI and 1050 hearing

adolescents of 12 to 18 years of age during field administration. Sampling procedure was the same as adopted in Pilot Study. The CRs of participants with hearing impairment could not reach the above mentioned value this time again. Therefore, scoring of the hearing impaired participants was done according to the CRs of the hearing participants. Proportion Consensus Method (Barchard & Russel, 2006) was used for scoring. In Proportion Consensus scoring each respondent's score on an item is equal to the proportion of the norm group who match the respondent's answer (Barchard & Russel, 2006). After data collection responses were tabulated and data was analyzed and interpreted.

Phase-II: Hypotheses testing

Participants. The sample was selected from 23 high schools for participants with HI as well as from 28 hearing high schools in the Punjab province. In Pakistan, children with disabilities have been educated in segregated settings. All the high schools for students with HI in the province were included and hearing schools were selected that were located near these special institutions. The sample was stratified according to age and gender. First of all the students of one school were taken in seven groups according to their ages from 12 to 18 years. Then 469 with hearing impairment (197 females) as well as 1050 (525 females) hearing participants were selected through systematic random sampling technique. The demographic data of participants with HI is given in Table 1.

Table 1

Descriptive Statistics of Participants (N = 469)

Variables		*n*	*%*
Access to hearing assessment & Speech Services		179	38.2
No access to hearing assessment & Speech Services		290	61.8
Received Pre-lingual Intervention		83	17.7
Received Post-Lingual Intervention		386	63.3
Preferred language of family with participants (sign)		172	36.7
Preferred language of the participants (spoken)		297	63.3
Preferred language of participants (sign)		443	94.5
Preferred language of participants (spoken)		26	5.5
Level of Hearing Loss:	Mild	03	0.6
	Moderate	42	9
	Severe	194	41.4
	Profound	230	49
Any other deaf member in the family (parents/siblings)			
	Yes	73	15.6
	No	396	84.4

Instrument

Adaptive Emotional Abilities Scale. Indigenously developed scale named as Adaptive Emotional Abilities Scale (AEAS) was used to assess the adaptive emotional abilities for two major reasons. Firstly the unavailability of standardized tool having norms of adolescents with HI in Pakistan and secondly the assessment of emotional intelligence is controversial in cultural terms. Most measures assess a participant's ability to reflect on specific behaviors in a specific context. Therefore, the tools that are designed to measure emotional intelligence in the work places cannot be used to assess the ability to resolve the emotional problems in family relationships (Hein, 2006). Hein (2005) criticized these emotional intelligence tests because the measures are not culture free.

This scale was based on the Emotional Ability Model (Mayer & Salovey, 1997). AEAS comprising of 136 items was rated on Likert scale in which pictures were also used. It has five options, strongly disagree, disagree, neutral, agree and strongly agree. It was a paper and pencil, problem based (not a self report measure) instrument that could be either individually or group administered. The scale was devised in Urdu language whereas Total Communication Method was used for participants with HI. This was a combined method in which finger spellings, lip reading, and sign language are used. A demographic form was also given to the participants in order to record their personal information in relation to variables of the study.

Results

Divergent Validity of Adaptive Emotional Ability Scale

Face and content validity of the scale was estimated by experts that have been described above. Divergent validity was estimated by selecting 18 teachers who worked with 28 hearing impaired students (12-18 years). The teachers told that these students exhibited the behavioral and emotional problems for a period of six months. In addition a 3-point Disruptive Behavioral Scale (DBS) was developed using the criteria of Disruptive Behavior Disorders given in the DSM-IV-TR (2000). Its content validity was assessed by seven experienced clinical psychologists. These teachers were asked to rate 28 participants with HI on the DBS. The mean duration of each teacher with these children was 4.71 years. Pearson correlation value (r = -.79; p<.001) showed that 28 deaf participants got high scores on DBS and lower on AEAS. Discriminant validity of the scale was assessed by comparing the Means of two groups with and without the signs of emotional behavioral problems. An independent-samples t-test was

performed on the scores of two groups on AEAS. There was a significant difference in the scores of the group who do not have emotional and behavioral problems (M = 326.06, SD = 109.72) as compared to the participants who have (M = 264.79, SD = 98.24); (t = 2.88, p < .001). Research evidences abound that people with lower emotional ability were more involved in emotional and behavioral problems (Brackett & Mayer, 2003; Hessler & Katz , 2010; Trinidad, Unger, Chou, & Johnson, 2005; Trinidad & Johnson, 2002).

Factor Analysis

Exploratory Factor Analysis (EFA) was run on the data for both groups. Promax Rotation was used as it has been done in earlier studies on emotional intelligence (Petrides & Furnham, 2000; Rozzen, Kranzler, & Algina, 2008). Three EFAs were conducted to determine the factor structure: one for the hearing participants and then two using the data for the participants with HI to determine if their structure could be confirmed. The file of participants with HI was split into two halves using even and odd numbers. All EFAs found one factor solution. In hearing data the first factor accounted for 50% of the variability with initial Eigen value 59 (Table 2). For the samples with HI, the first factor explained 55% of the variance with Initial Eigen value 69.79 for odd group and 59% of the variance with Initial Eigen value 69.02 for even (Table 2). Finally 131 items with loadings > .30 were retained. This factor was used to reduce the data into the General Adaptive Emotional Abilities Scale (GAEAS).

Table 2

Total Variance Explained (Promax Rotation) for Hearing Participants (N = 1050)

Component	Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	59.12	43.473	43.47	59.12	43.47	43.47	50.41
2	12.17	8.950	52.42	12.17	8.95	52.42	44.67
3	3.78	2.780	55.20	3.78	2.78	55.20	20.85
4	3.63	2.673	57.87	3.63	2.67	57.87	31.87
5	3.14	2.313	60.18	3.14	2.31	60.18	15.32
6	2.79	2.055	62.24				
7	2.41	1.777	64.02				
8	1.91	1.405	65.42				
9	1.83	1.349	66.77				

Table 3

Total Variance Explained (Promax Rotation) for Odd and Even Groups of Participants with Hearing Impairment (N = 1050)

Component	Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
Odd Group							
	69.79	51.31	51.31	69.79	51.31	51.31	55.20
	4.03	2.96	54.28	4.03	2.96	54.28	54.56
	3.10	2.28	56.56	3.10	2.28	56.56	49.92
	2.25	1.65	58.22	2.25	1.65	58.22	29.96
	1.95	1.43	59.65	1.95	1.43	59.65	54.04
	1.84	1.35	61.01				
Even group							
	69.02	50.75	50.75	69.02	50.75	50.75	60.01
	3.86	2.83	53.59	3.86	2.83	53.59	52.31
	3.56	2.61	56.21	3.56	2.61	56.21	47.21
	2.17	1.59	57.81	2.17	1.59	57.81	34.81
	1.69	1.24	59.05	1.69	1.24	59.05	37.55
	1.63	1.20	60.26	1.63	1.20	60.26	39.92
	1.60	1.18	61.44	1.60	1.18	61.44	46.11

In the present study the results do not confirm to the Emotional Ability Model (Mayer & Salovey, 1997). The results were consistent with other studies on the Emotional Ability Model (Fan, Jackson, Yang, Tang, & Zang, 2010; Palmer, Gignac, Manocha, & Stough, 2005; Rozzen et al., 2008; Schutte et al., 1998). Akram and Jabeen (2013) developed a self report Likert scale of emotional intelligence. The statistical analysis of pilot study leads to one factor solution. A plausible explanation may be that the respondents of this study were different in terms of their culture and emotional abilities are largely culturally constructed (Hein, 2005). These studies suggested further refinement of the emotional intelligence theory of Mayer and Salovey 1997 as well as their test entitled, "Mayer-Salovey-Caruso Emotional intelligence Test version 2.0"(Mayer, Salvey & Caruso, 2002). In short, emotional intelligence as a concept has been criticized for its loose definition and parallels to personality traits. Additionally, several limitations to the instruments used, to measure emotional intelligence has been identified (Romanelli et al., 2005). There might be two reasons. Firstly, emotional intelligence has been relatively newer concept (Conte, 2005). Secondly the emotional abilities have been constructed in the context of interaction, relationship, and culture

(Boiger & Mequite, 2012; Conte, 2005; Thompson, Meyer, & Jochem, 2008). We learn emotional recognition, understanding, and regulation through interaction with our significant others and our social experiences (Pollak & Thoits 1989; Reeve, 2005; Shaver, Schwartz, Kirson, & O'Conner, 1987).

AEAS was also found to reach acceptable levels of reliability. Internal consistency for data of sample with HI as well for hearing participants was .98 and .96, respectively, whereas split half reliability (odd-even) was .97 for group with HI and .91 for hearing sample. Test re-test reliability with time interval of two weeks was assessed on the hearing sample only and it turned out to be $r = .87$.

An independent sample *t*-test was performed to determine the difference between the performances of two groups on the basis of their hearing. Findings indicated that there was a significant difference in the levels of adaptive emotional abilities of the hearing participant ($M = 523.73$, $SD = 77.30$) and the participants with HI ($M = 332.40$, $SD = 109.93$) with t (35.89), $p < .000$) . Therefore it appeared that the hearing adolescents were significantly better on the abilities of recognizing, understanding, and managing emotions as compared to the group with HI.

Table 4

Multiple Regression for Variables Predicting Adaptive Emotional Abilities of Adolescents with Hearing Impairment (N= 469)

Independent Variables	*B*	*SEB*	*β*	*t*
Constant	582.61	45.38		12.83
Access to assessment & speech services	-42.47	11.76	-.18***	3.61
Time of intervention	-56.37	14.28	-.19***	3.94
Preferred Language of family with their hearing impaired adolescents	-29.19	12.96	-.12*	2.25
Preferred language of hearing impaired adolescents	-50.57	20.98	-.10*	2.41
Levels of hearing loss	13.45	7.15	.08	1.88
Having family members with HI	-23.77		-.10*	2.45
R^2	.28			
F	30.30***			

*$p < .05$, ***$p < .001$

Multiple regressions were run to test the second hypothesis. The Table 4 shows R^2 value (.28) explained 28% of the variability of the data. *F*-ratio (30.30) was significant at ($p < .001$) which describes

linear relationships between variables. The results of regression showed that the variables, access to hearing assessment and speech services (β = -.18, p < .001), time of intervention (β = -.19, p < .001), presence of any deaf family member (parents and siblings) (β = -.10, p < .05), sign language as a preferred language of both of family with their hearing impaired children (β = -.12, p < .05) as well as of the participants themselves (β = -.10, p < .05) played significant role in predicting the adaptive emotional abilities of participants with HI regardless of their levels of hearing loss (mild, moderate, severe, and profound).

Discussion

The results of the present study showed that the adolescents with HI scored significantly lower than the hearing adolescent. Numerous studies indicate poor social emotional adjustment as well as low social emotional abilities of deaf children (Benderly, 1980; Feuerstein, 1980; Greenberg & Kusche, 1998. In fact, hearing impairment affects the child as well as the whole family and may create many economical and social constraints for the family (Moores, 1987). However, children with HI are disadvantaged in terms of educational and other social emotional experiences. Literature review shows that individuals with HI are suffering from emotional problems due to the communication limitations and other circumstances (Kirk et al., 2003). These emotional difficulties lead to poor social emotional adjustment in their homes, schools and work places (Greenberg & Kusche, 1998; Moores, 2001).

The reason may be other than hearing impairment itself as Greenberg and Kuche (1998; p.49) reported:

> "Although hearing impaired persons vary widely in their personalities, interests, and mental health, many deaf children and adults share developmental experiences that are less than optimal, including early and continued communicative deprivation, difficulties in their families of origin, less than adequate educational experiences and continuing social stigma and prejudice. As a result, a significant portion of deaf and hard of hearing persons show developmental disintegrations of language, cognition, and affect".

The previous studies indicated that several factors play crucial role in improving the social emotional abilities of the children with HI such as early identification and intervention, status of parents' hearing, parents training and education, early use of proper

communication methods, and availability of sophisticated technological aids (Dhingra, Manhas, & Sethi, 2007; Kirk et al., 2003). Similarly, the results of the present study showed that the time of intervention, hearing status of the parents and sibling, access of hearing assessment and speech services and the sign language as a preferred mode of communication of parents with hearing impaired participants appear to play a significant role in determining the adaptive emotional abilities of the adolescents regardless of their level of hearing loss which is clearly indicating the significance of social, emotional and medical support to these adolescents that enriches their life experiences and make their social emotional adjustment better.

A variety of studies has demonstrated that early intervention programs for children with HI and their hearing parents lead to more effective and natural social interactions. Moreover these programs enhanced communication, particularly when sign language is a primary mode of communication (Vaccari & Marshark, 1997). The present study also indicated that the participants who receive intervention in pre-lingual period in the form of any amplification, cochlear implantation, speech training, have higher levels of emotional abilities. The results are also consistent with the findings of Smith et al. (2014) who asserted the important role of early intervention in the development of cognitive abilities of children with HI. Early intervention is possible on the basis of early assessment and diagnosis. The children with HI who received language oriented early intervention programs showed better social emotional adjustment as compared to peers who were not involved in intervention programs (Calderon & Greenberg, 1993) whereas; the results of present study showed that 82.3% of the participants with HI do not receive early intervention that may be a serious cause of poor emotional abilities.

According to Moores (2001) over 90% of deaf children have hearing parents, the majority of whom either do not know sign language at all or have relatively little skills in that domain. The present study shows that majority of the parents (63.3%) preferred spoken language with their children with HI and the results suggest that the participants whose family used sign language reported higher emotional abilities than the other group. On the other, hand the results indicated sign language as the preferred mode of communication of majority of participants (94.5%). Here, a serious and threatening communication gap can be seen between the participants with HI and their families on the basis of their preferred language. The preferred language of the participants and their families are contrary to each other. Therefore, they have rare chances to have an effective

communication and without it one may not have enough opportunities to develop and to improve cognitive, social and emotional skills. The communication through sign language is the right of hearing impaired individuals and its absence or poor use may lead to many psycho-social problems (Weiss, 2013).

Findings also revealed that the participants having any hearing impaired family member reported higher scores on AEAS than the participants without. Only 15.4% of the participants have hearing impaired parents/siblings. Generally, it is believed that the lives of hearing impaired children with hearing impaired parents are different from the children with HI having hearing parents. Obrzut, Maddock, and Lee (1999) concluded that hearing impaired individuals with hearing impaired parents appeared to have better self concepts than the hearing impaired individuals with hearing parents. Vaccari and Marschark (1997) reported that hearing parents of children with HI exhibited more feelings of frustration in child-rearing than did hearing parents of hearing children. Those feelings were the outcomes of the perceived inability of parents to communicate effectively with their children, even about common, daily routines. This frustration led to a reduction in parents' responsiveness to affective cues of their children. In the result the type and quality of parent-child interactions and the psychological development of the child may be effected (Hadadian & Rose, 1991).

There is evidence indicating that children with HI who are engaged in linguistic interaction with their parents are functioning well socially, emotionally, and cognitively. The hearing impaired parents of children with HI may have meaningful linguistic interaction with their children at a variety of levels through signing or other communication skills. Therefore these children get better chances to gain rich experiences of life. They can acquire knowledge of self and others thus they feel themselves as a part of this world. Even hearing parents of children with HI can learn the sign language and other appropriate communication methods through which they can bring positive change in their academic, social and cognitive life. But lack of such interactions raises the risk of these children not being able to develop their full potential (Vaccari & Marschark, 1997; Weiss, 2013).

The present study illustrates a large difference of the emotional abilities between the adolescents with and without hearing impairment as compared to other places in the world. Mostly these studies have been conducted in the developed and Western countries (Satapath, 2012; Vogel-Walcutt, Schatschneider, & Bower, 2011). It may be because in these countries the children with disabilities are more

encouraged and trained to recognize, express, and mange their emotions. Moreover, almost all children with HI receive early intervention as well as have access to proper hearing and speech services. Their parents are more educated and trained so they know how to deal with HI. In short, the children with disabilities have more facilities in the developed countries as compared to the disabled persons in Pakistan (Farooq, 2003).

It is indicated by the results that the adolescents with HI are severely disadvantaged in terms of early intervention, adequate communication strategies, and access to hearing assessment and speech services (see Table 1 and 4). Therefore, hearing impairment itself is not the only cause of poor adaptive emotional abilities of adolescents with hearing impairment.

Conclusion

The participants with HI remained lower scorers on AEAS as compared to hearing adolescents. Multiple regression shows that socio-demographic variables like time (pre-lingual and post lingual) of receiving intervention, deaf family members, hearing assessment, and speech services, preferred language of family with their hearing impaired children, and preferred language of participants play important role in their adaptive emotional abilities regardless of the levels of hearing loss. Thus, the results showed that being hard of hearing and deaf is not being defective but rather a different way of being.

Limitations

The major limitation of the present study was the lack of inclusion of parents of adolescents with HI because of lack of standardized tools, time, and financial constraints. Their inclusion would be assistive to explore the relationship of adaptive emotional abilities with parental stress, knowledge, and skills to deal with the special needs of their children with HI. Moreover, the sample size was not comparable on the basis of the levels of hearing loss. In Pakistan majority of the students in special settings have severe and profound levels of hearing loss because the children with mild and moderate hearing loss are either in mainstream or out of the educational setting (Farooq, 2003).

Recommendations

It is recommended to incorporate an adaptive emotional abilities development program to the existing curricula of adolescents with HI. It is imperative to formulate a comprehensive training program that will help students with HI to learn the skills of emotional recognition, emotional facilitation, emotional understanding and emotional management that might facilitate their social and emotional functioning in homes, schools and work places as it was found that emotional abilities of children with HI can be enhanced through training (Dyck & Denever, 2003). The further researches must explore demographic variables such as the knowledge of parents about deafness, parental stress, their education and monthly income, child rearing practices, siblings and peer influences and so on that play vital roles in the formation of adaptive emotional abilities of adolescents with deafness. Hearing assessment and language oriented early intervention programs should be started at government level for adolescents with HI in Pakistan. The family members of the individuals with HI should be trained in using sign language and in dealing their special needs. Further researches should be conducted across cultures to assess the reliability and validity of the AEAS. The nature of relationships between emotional abilities and intelligence and other personality traits should be focused.

Implications

The findings of the present study would help to understand that hearing impairment itself is not the only reason of lacking emotional abilities but the allied variables or factors that are more social in nature are playing important roles. Thus it would create awareness among stake holders to deal with these factors in a manner that can help to improve their adaptive emotional abilities which may lead to healthy emotional and social functioning of the adolescents with HI. The significance of the study is evident in the light of the findings of previous studies showed a significant relationship between emotional intelligence and academic achievement as well as between emotional intelligence and social emotional adjustment of individuals with HI (Yasin, Bari, & Salubin, 2012).

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