

Red Flags Associated With Knowledge Of Speech And Language Disorders Among Special Educators

Syed Tariq Shah¹, Nazia Mumtaz², Ghulam Saqulain³

Abstract

Objective: To explore the knowledge about speech and language disorders among special educators of Army schools in Pakistan in association with qualification and experience.

Methods: This cross-sectional descriptive study using convenience sampling was conducted at Isra Institute of Rehabilitation Sciences, Isra University from May to October 2017 and comprised of two phases. Phase 1 included the construction & pilot testing of a questionnaire utilizing a sample of N=20 educators and Phase 2 included the main study with N=100 educators of both genders from schools of Army Special Education Academy, Sir Syed School and College of Special Education and Aghosh Special Education Centre Kharian Cantonment. The sample educators included both genders, dealing with children with intellectual and hearing impairment. SPSS Version 20 was used for data analysis.

Results: To assess the knowledge of the educators, a specially structured questionnaire with Cronbach's alpha reliability coefficient of 0.79 was applied to a sample with a mean age of 32.70±6.92 years with the majority of 85(85%) being female educators. The study revealed good knowledge of educators with a total mean score of 69.70±10.61 and a significant (p=0.000) association of knowledge of educators with the highest scores for those with Masters Qualification (73.15±7.68). However, no significant association between gender (p=0.151) and work experience of educators (p=0.093) was noted, though the scores were higher for educators with 11-15 years of experience.

Conclusion: The study concludes good knowledge of special educators about speech and language disorders with some red flags including the significant association of knowledge with qualification with master (special education) qualification presenting with a higher level of knowledge. However, work experience and gender did not reflect any significant association with the knowledge of educators.

Keywords: Hearing Impairment, Intellectual Impairment, Special Education, Speech Language Disorders.

¹ Senior Lecturer Rehabilitation Sciences, Riphah International University, Lahore; ² Head of Department of Speech-Language Pathology, PhD Rehabilitation. Faculty of Rehab & Allied Health Sciences, Riphah International University, Lahore; ³ Professor & Head of Department of Otorhinolaryngology & Deputy Dean, Capital Hospital PGMI, Islamabad.

Correspondence: Dr. Ghulam Saqulain, Professor & Head of Department of Otorhinolaryngology & Deputy Dean, Capital Hospital PGMI, Islamabad. **Email:** ghulam_saqulain@yahoo.com

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1. Introduction

Communication is the vital essence of human life being an important tool to interact with the environment. Effective communication depends on the efficient utilization of language, which is the vital component of verbal communication as well as the use of non-verbal communication.¹ In educational setups, good knowledge and understanding of the role of Speech Language Pathologist (SLP) have a positive impact on improved communication as well as instructional methodologies by the educators in the classrooms. It is believed that better educator knowledge helps design better instructional interventions, especially for learners who might be at risk of speech-language disorders (SLDs), hence improving their academic performance.² The school

children have language and communicational needs which demand teachers' and SLPs' professional collaboration, knowledge and training.³ Students with SLDs face barriers in learning during school years and teachers and parents have a responsibility to cater to these difficulties.⁴ Studies revealed that awareness among the populace regarding Speech-Language Pathology is deficient to ensure the delivery of services to those with communicational disability.⁵ The teachers must act and prevent primary speech therapy issues in schools, however, deficient knowledge affects their function⁵ and a study by Melo JKO et al. revealed a limitation of knowledge of SLP and hearing impairment (HI) as regards education among teachers.⁶ The SLPs are duty-bound to support the educational, emotional, social as well as vocational endeavours of children facing

communication challenges. To achieve this end collaboration of SLPs and educators including teachers is essential but can be challenging due to multiple reasons,⁷ since among different professionals, the teachers revealed the least knowledge and understanding of speech-language therapy, hence need there is a need for teachers to learn and practice communication skills and develop a relationship with students especially where special children are being educated is vouched for.⁸ With around 15% of United States children having disabilities, The Individuals with Disabilities Education Act (IDEA) emphasizes all affected children starting from first year to young adulthood with free special education.⁹ However, knowledge of SLP is essential for teachers to ensure catering to those children. The knowledge of teachers as regards educational speech-language disorders has limitations; hence further research is needed⁶ in the form of a current study that was conceived to explore the knowledge about speech and language disorders in Special Educators of Pakistani Army schools in association with qualification and experience. The current study is important since the identification of gaps can help remedy areas requiring integration of special education for these children and bringing positive changes to their lives.¹⁰

2. Materials & Methods

The current study developed and validated a tool to assess the knowledge about Speech and Language Disorders in Special Educators of Army schools in Pakistan and utilized a cross-sectional survey design to recruit N=20 teachers for pilot testing and a sample of N=100 for the main study employing the convenience sampling technique. The present research was conducted over 6 months from 1st May 2017 to 31st October 2017 in two phases: Phase-I included the construction, piloting and validation of the Questionnaire to assess the level of knowledge about Speech-language disorders in special educators and Phase-II was the main study, conducted using the developed questionnaire in Phase-I. Phase-I: Construction, piloting & Validation of Questionnaire:

Construction: Firstly, the questionnaire was constructed by two SLPs in two sections with Section I regarding relevant demographics related to Special educators and Section II containing questions related to speech and language disorders in children with intellectual impairments and hearing impairments and reflected the pre-speech skills. Secondly, the constructed items were sent to the 03 expert SLPs, who further improved the questionnaire items. Piloting, Reliability Testing: Thirdly, the 16 questionnaire items pilot tested to identify loopholes in the formal structured setting of schools including the Army special education academy and Sir Syed School and College for Hearing Impaired, Rawalpindi and the five-point Likert Scale was utilized for scoring i.e. very frequently, frequently, occasionally, rarely, never. The sample of 20 educators including each category of disability was selected and results were ascertained through alpha Cronbach reliability.

Phase II: Main Study: The main study was conducted in the formal setting of schools of the Army Special Education Academy, Sir Syed School College of Special Education and Aghosh Special Education Centre Kharian Cantonment. The study duration was of 4 months from 1st July to 31st December 2016. The sample included N=100 Special educators of both genders with no age limitation and catering to children with intellectual and hearing impairment. Educators dealing with children with visual, physical and any other co-morbidity were excluded from the study.

The research was carried out after obtaining ethical approval from the Institutional Research Board of Isra Institute of Rehabilitation Sciences, Isra University vide Reference no. 1502-M.Phil-SLP-005, permission from school authorities and consent of the participant educators.

Data analysis was conducted using SPSS version 20. Descriptive statistics were utilized and frequency and percentage were calculated for demographic variables and Mean scores were calculated for questionnaire items. T-test and ANOVA were utilized to see associations and P <0.05 was considered significant.

3. Results

The current study sample for validation and reliability testing of the questionnaire included educators with a mean age of 32.7±7.06 years who were mostly 17(85%)

female educators and mainly 15(75%) having MS (special education) qualification with experience of 1-5 years 12(60%) (Table 1).

Table 1: Demographic characteristics (Pilot Study N=20, Main Study N=100)

Variable	Category	Pilot Study (N=20) n(%)	Main Study (N=100) n(%)
Gender	Male	3 (15)	15 (15)
	Female	17 (85)	85 (85)
Qualification	BS(Special Education)	1 (5)	5 (5)
	MS(Special Education)	15 (75)	75 (75)
	M.Ed (Special Education)	3 (15)	15 (15)
	M.Phil (Special Education)	1 (5)	5 (5)
Working experience (Years)	1-5	12 (60)	60 (60)
	6-10	2 (10)	10 (10)
	11-15	6 (30)	30 (30)
Number of workshops attended on speech and language therapy	0	N/A	75 (75)
	1		15 (15)
	2		10 (10)
Number of workshops attended on topics related to hearing-impaired children's communication problem or their speech and language problems	0	N/A	85 (85)
	1		10 (10)
	2		5 (5)
Number of workshops attended on topics related to intellectually challenged children and their speech and language problems	0	N/A	60 (60)
	1		25 (25)
	4		5 (5)
	6		5 (5)
	8		5 (5)

N/A- Not Applicable

Cronbach's alpha reliability statistics of the 16-item questionnaire revealed a Cronbach's alpha reliability coefficient of 0.79 for the total scale while it was >0.76 for all individual items (Table 2), with a value close to 1, indicating good internal consistency for the scale.

To assess the knowledge of the educators, a questionnaire was applied to N=100 educators with a mean age of 32.70±6.92 years with the majority 85(85%) female educators with 75(75%) having MS (special education) qualification and 60(60%) having 1-5 years' experience (Table 1) Results (Table 3) revealed a significant (p=0.000) association of knowledge of educators with the highest scores for those with masters' qualification (73.15±7.68) and the association was significant for individual items number 4 to 12 & 15 &16. Though these items revealed significant association with qualification, Item 4) Language is the means of communication revealed higher scores for BS & Med (Special Education), and Item 5) Imitation is one of the important components of pre-speech skill/pre-learning skill & Item 6) Eye contact means giving eye contact to the object or the stimuli or the communication partner revealed highest scores for Masters and MPhil (special education). Item 7) Intellectually challenged children feel difficulty in turn taking and understanding rules of game & 8) Impairment in the ability to receive process and comprehend concepts or verbal or non-verbal referred to as communication disorder revealed highest scores for MPhil (special education). Item 9) Mispronunciation, addition, subtraction or omission of sound is an articulation disorder that showed the highest scores for Masters' (special education). Item 10) Disorders characterized by abrupt speech, hoarseness, breathiness or nasality refer to voice disorders revealed the highest scores for MPhil (special education).

Item 11) Inability to blend sound as expected age-appropriate level refers to phonological disorder revealed highest scores for MEd & MPhil (Special Education). Item 12) Inability to process and comprehend instructions refers to receptive language disorder revealed highest scores for MPhil (special education). Item 15) Deficits in non-verbal communicative behaviour used for social interaction and echolalia is the hallmark of autism revealed highest scores for Med(special education) and item 16) Voice disorders are more common in children with hearing impairment as compared to intellectually challenged children revealed highest scores for Masters' qualification.

Table 2: Reliability Statistics (Cronbach's Alpha)

Questionnaire Items	Mean	SD	Cronbach's Alpha if Item Deleted
1) speech and language disorders are more associated with intellectually challenged hearing hearing-impaired children	4.80	0.89	0.78
2) special educators refer children with speech and language disorders to speech and language pathologists	4.80	0.89	0.77
3) special educators manage speech and language disorders of intellectually challenged hearing hearing-impaired children	5.00	0	0.79
4) language is the means of communication	4.60	1.23	0.79
5) imitation is one of the important components of pre-speech skill/pre-learning skill	4.20	1.64	0.79
6) eye contact means giving eye contact to the object or the stimuli or the communication partner	4.60	1.23	0.77
7) intellectually challenged children feel difficulty in turn-taking and understanding the rules of the game	4.20	1.64	0.78
8) impairment in the ability to receive process and comprehend concepts or verbal or non-verbal referred to as communication disorder	4.20	1.64	0.76
9) mispronunciation, addition, subtraction or omission of sound is an articulation disorder	3.50	1.93	0.79
10) disorder characterized by abrupt speech, hoarseness, breathiness or nasality refers to voice disorder	4.60	1.23	0.76
11) the inability to blend sound at an expected age-appropriate level refers to a phonological disorder	4.20	1.64	0.76
12) the inability to process and comprehend instructions is referred to as receptive language disorder	4.40	1.47	0.79
13) inability to present or express his/her thoughts and ideas in words and limited use of vocabulary refer to as expressive language disorder	4.40	1.31	0.79
14) frequent repetition of sounds, words or excessive blockage in speech referred to as fluency disorder	4.80	0.89	0.80
15) deficits in non-verbal communicative behaviours used for social interaction and echolalia are marks of autism	4.60	1.23	0.80
16) voice disorders are more common in children with hearing impairment as compared to intellectually challenged children	4.00	1.78	0.76
Total	70.90	10.77	0.79

As regards gender association of educators' responses (Table 4) a higher total score for males, however, no significant association ($p=0.151$) with gender for total score was noted. As regards individual items, items number 5, 7, 12, and 15 revealed significant associations with gender. As regards experience association of educator's responses (Table 4) revealed no significant association ($p=0.093$) for total scores with higher scores for 11-15 years of experience. However individual items no 6, 8, 10, to 15 revealed significant association with work experience.

Table 3: Questionnaire Items vs. qualification of educator. Cross tabulation. Anova Statistics (N=100).

Questionnaire Items	Total Score/ p-value	BS (Special education) (5)	Masters (Special education) (75)	M.Ed (Special education) (15)	M.Phil (Special education) (5)
	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
1) Speech and language disorders are more associated with intellectually challenged hearing hearing-impaired children	4.80 ±0.88 .571, .635	5.00 ±0	4.73 ±1.00	5.00 ±0	5.00 ±0
2) Special educators refer children with speech and language disorders to speech and language pathologists	4.80±0.88 0	1.00±0	5.00±0	5.00±0	5.00±0
3) Special educators manage speech and language disorders of intellectually challenged hearing hearing-impaired children	5.00±0 0	5.00±0	5.00±0	5.00±0	5.00±0
4) Language is the means of communication	4.64±1.15 15.941, .000	5.00±0	4.73±1.00	5.00±0.00	1.80±1.79
5) Imitation is one of the important components of pre-speech skill/pre-learning skill	4.24±1.58 585.6, .000	1.80±1.79	5.00±0	1.00±0	5.00±0
6) Eye contact means giving eye contact to the object or the stimuli or the communication partner	4.60±1.21 54.40, .000	1.00±0	5.00±0	3.67±1.95	5.00±0
7) Intellectually challenged children feel difficulty in turn-taking and understanding the rules of the game	4.30±1.46 15.77, .000	1.00±0	4.60±1.09	3.67±1.95	5.00±0
8) Impairment in the ability to receive process and comprehend concepts or verbal or non-verbal referred to as communication disorder	4.00±1.74 7.130, .000	1.00±0	4.20±1.61	3.67±1.95	5.00±0
9) Mispronunciation, addition, subtraction or omission of sound is an articulation disorder	3.90±1.74 21.552, .000	1.00±0	4.47±1.37	3.00±1.69	1.00±0
10) Disorder characterized by abrupt speech, hoarseness, breathiness or nasality refers to voice disorder	4.40±1.29 19.78, .000	1.00±0	4.60±1.09	4.33±0.98	5.00±0
11) The inability to blend sound to an expected age-appropriate level refers to a phonological disorder	4.00±1.74 8.909, .000	1.00±0	3.93±1.78	5.00±0	5.00±0
12) The inability to process and comprehend instructions is referred to as receptive language disorder	3.70±1.59	1.00±0	3.93±1.45	3.00±1.69	5.00±0
13) Inability to present or express his/her thoughts and ideas in words and limited use of vocabulary refer to as expressive language disorder	4.40±1.29 .800, .497	5.00±0	4.33±1.41	4.33±0.98	5.00±0
14) Frequent repetition of sounds, words or excessive blockage in speech referred to as fluency disorder	4.56±1.09 .764, .517	5.00±0	4.55±1.17	4.33±0.98	5.00±0
15) Deficits in non-verbal communicative behaviours used for social interaction and echolalia are marks of autism	4.36±1.33 22.417, .000	3.00±0	4.60±1.09	4.73±1.03	1.00±0
16) Voice disorders are more common in children with hearing impairment as compared to intellectually challenged children	4.00±1.74 18.00, .000	1.00±0	4.47±1.37	3.67±1.95	1.00±0
Total	69.70±10.61 40.134, .000	38.80±1.7 9	73.15±7.6 8	64.40±6.3 3	64.80±1.7 9

Table 4: Questionnaire Items vs. Gender and Work Experience of educator. Cross tabulation. Anova Statistics (N=100)

Questionnaire Items	Gender		Work Experience				
	Male	Female		1-5 years(60)	6-10 years(10)	11-15 years(30)	
	Mean±SD	Mean±SD	P-value	Mean±SD	Mean±SD	Mean±SD	P-Value
1) Speech and language disorders are more associated with intellectually challenged hearing hearing-impaired children	5.00±0	4.76±0.95	0.340	4.67±1.11	5.00±0	5.00±0	0.177
2) Special educators refer children with speech and language disorders to speech and language pathologists	5.00±0	4.76±0.95	0.340	4.67±1.11	5.00±0	5.00±0	0.177
3) Special educators manage speech and language disorders of intellectually challenged hearing hearing-impaired children	5.00±0	5.00±0	-	5.00±0	5.00±0	5.00±0	0
4) Language is the means of communication	5.00±0	4.58±1.24	0.190	4.67±1.11	5.00±0	4.47±1.38	0.433
5) Imitation is one of the important components of pre-speech skill/pre-learning skill	5.00±0	4.11±1.68	0.042	4.07±1.71	5.00±0	4.33±1.52	0.208
6) Eye contact means giving eye contact to the object or the stimuli or the communication partner	5.00±0	4.53±1.30	0.165	4.33±1.50	5.00±0	5.00±0	0.024
7) Intellectually challenged children feel difficulty in turn-taking and understanding the rules of the game	5.00±0	4.18±1.55	0.043	4.00±1.75	5.00±0	4.67±0.76	0.033
8) Impairment in the ability to receive process and comprehend concepts or verbal or non-verbal referred to as communication disorder	3.67±1.95	4.06±1.71	0.424	3.47±1.96	5.00±0	4.73±1.01	0.001
9) Mispronunciation, addition, subtraction or omission of sound is an articulation disorder	3.67±1.95	3.94±1.71	0.575	4.00±1.75	3.00±2.11	4.00±1.55	0.227
10) Disorder characterized by abrupt speech, hoarseness, breathiness or nasality refers to voice disorder	5.00±0	4.29±1.37	0.050	4.00±1.54	5.00±0	5.00±0	0
11) The inability to blend sound to an expected age-appropriate level refers to a phonological disorder	3.67±1.95	4.06±1.71	0.424	3.67±1.90	3.00±2.11	5.00±0	0
12) The inability to process and comprehend instructions is referred to as receptive language disorder	5.00±0	3.47±1.62	0	3.33±1.61	4.00±1.05	4.33±1.52	4.428,.014
13) Inability to present or express his/her thoughts and ideas in words and limited use of vocabulary refer to as expressive language disorder	5.00±0	4.29±1.37	0.050	4.67±1.11	3.00±2.11	4.33±0.96	8.314,.000
14) Frequent repetition of sounds, words or excessive blockage in speech referred to as fluency disorder	5.00±0	4.48±1.16	0.089	4.83±0.56	3.00±2.11	4.53±1.01	15.93,.000
15) Deficits in non-verbal communicative behaviours used for social interaction and echolalia are marks of autism	3.67±1.95	4.48±1.16	0.028	0	5.00±0	3.87±1.63	3.753,.027
16) Voice disorders are more common in children with hearing impairment as compared to intellectually challenged children	3.67±1.95	4.06±1.71	0.424	4.00±1.75	5.00±0	3.67±1.92	2.256,.110
Total	73.33±5.16	69.06±11.21	0.151	67.87±12.19	71.00±7.38	72.93±6.86	2.430,.093

4. Discussion

Teaching children with special needs should take into account the requirements of children and to serve that purpose, the following parameters must be considered i) Communicating and interacting with peers and significant others including utilizing mainstreaming, and sensory approach; ii) Cognitive and learning initiatives including teaching skills with transferable thinking and learning, classroom as a whole learning place, comprehensive teaching integrating into aspects of reading; iii) Behavioral, social and emotional approach including peer-monitoring or peer-oriented, efforts to improve on task behavior and cut down antisocial behavior, rewarding of positive behavior, combination approaches like cognitive behavior using family therapy, iv) Sensory/ physical steps including active learning environment, making child independent with environmental adaptation and use of technology.¹¹ To assess the knowledge of the special educators of Army

schools, a questionnaire was applied to N=100 educators with a mean age of 32.70±6.92 years with the majority 85(85%) being female educators and mostly 75(75%) with MS (Special education) qualification and 60(60%) with 1-5 years' experience. Lack of knowledge among pre-service special education teachers was reported in a Malaysian study as regards teaching students with language and communicational needs,¹² with communicational skills being given low priority among Pakistani teachers.¹³ A local study involving primary school teachers revealed no significant difference in knowledge depending on qualification.¹⁴ In contrast, current study results revealed a significant (p=0.000) relationship between the knowledge of educators with qualification, with the highest scores for those with Masters Qualification (73.15±7.68). These results are supported by the fact that training and qualification significantly improve the way students are handled. Only a trained teacher knows how to teach children with different disabilities by applying baseline theories and

incorporating the same through skills, while an untrained teacher would not be able to perform in a similar manner.¹⁵ Unfortunately, despite being a priority area in the educational system in Pakistan, policies to improve teacher education have only been followed in bits and pieces and hence are unable to bring the required results.¹⁶ According to Bempah JO et al., such untrained teachers also realize their shortcomings and get themselves registered for diplomas and degrees in special education in distant learning programs, however, senior untrained teachers do not follow this course of action for enhancing their knowledge.¹⁵ Not only teachers, but their educational leadership also needs to be supported with foundational knowledge about the implementation of programs for Special education.¹⁷ An Indian study by Tiwari & John also revealed a deficiency in the knowledge of special educators as regards educational programming as well as etiology of Autism spectrum disorders with higher scores for educational programming etc., indicating the need for awareness delivered by training and provision of knowledge.¹⁸ A Saudi study also revealed that teachers of special education lacked confidence, knowledge as well as skills in their ability to use assistive technology in classrooms, thus affecting the education of special needs students.¹⁹ According to Daniel & McLeod, teachers need to enhance their awareness regarding the requirements of kids with speech-language impairments to enhance the teaching environment.²⁰ The present study revealed no significant association ($p=0.093$) of knowledge of educators with a duration of their work experience with higher scores for those with 11-15 years of work experience. However, individual items 6 to 8 and 10 to 15 revealed significant association. A similar study by Bempah JO et al. also revealed that length of experience does improve the handling of students for qualified teachers, however unqualified and untrained teachers' knowledge lags in the management of children with special needs.¹⁵ A study by Tiwari & John revealed that Special educators educational level and experience affects their knowledge.¹⁸ Hence, Qualification level, experience of teaching, enrollment in workshops and awareness of learning disabilities in students are factors that make teachers refer students with speech-language issues to therapy centers.²¹ Therefore, education and professional growth of teachers should be focused in development programs for general educators so they can carry out assessment based informed decisions, develop

the needed compassion and understanding for children with special needs, and maintain good communication.²²

5. Conclusion

The study concludes that there is a positive correlation between the proficiency of special educators in recognizing speech and language disorders and certain indicators, notably a substantial association with higher education qualifications, specifically a Masters in Special Education. Individuals possessing a Masters qualification in Special Education exhibited a notably elevated level of knowledge. Conversely, factors such as work experience and gender did not demonstrate any statistically significant association with educators' knowledge levels.

CONFLICTS OF INTEREST- None

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Potential competing interests: None to report

Contributions:

S.T.S, N.M - Conception of study

S.T.S - Experimentation/Study Conduction

S.T.S, G.S - Analysis/Interpretation/Discussion

G.S - Manuscript Writing

N.M - Critical Review

S.T.S - Facilitation and Material analysis

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