

Original Article

Exploring Disparities in Emotional Intelligence among Hearing Impaired Students from Segregated and Inclusive Education Systems

Atia Ur Rehman^{1*}, Farhat Munir¹

¹Department of Education, School of Social Sciences and Humanities, University of Management and Technology, Lahore, Pakistan.

*Corresponding Author: Atia Ur Rehman; Email: f2016191001@umt.edu.pk

Conflict of Interest: None.

Rehman AU., et al. (2024). 4(1): DOI: <https://doi.org/10.61919/jhrr.v4i1.589>

ABSTRACT

Background: Hearing impairment presents unique challenges in the educational and social development of children. Emotional Intelligence (EI) is a key factor in their ability to navigate these challenges effectively. Disparities in EI among hearing-impaired students may vary significantly depending on whether they are educated in segregated or inclusive systems.

Objective: The study aimed to compare the levels of EI in hearing-impaired students attending segregated and inclusive educational institutions in Punjab, Pakistan, to determine how different educational settings influence their emotional competencies.

Methods: A cross-sectional study was conducted involving 742 hearing-impaired students from various secondary and higher secondary schools and universities. The research employed a non-probability purposive sampling technique. Ethical approval was obtained from the Social Sciences Review Committee of the University of Management and Technology (UMT), and all procedures were in line with the Declaration of Helsinki. EI was measured using a standardized scale encompassing dimensions such as Self-Regard, Assertiveness, Empathy, and Stress Tolerance. The Statistical Package for the Social Sciences (SPSS) version 25 was used for data analysis.

Results: Students in segregated settings scored higher in most EI components, with Interpersonal Skill (Mean=3.10, SD=0.63), Self-Regard (Mean=2.69, SD=0.63), and Assertiveness (Mean=2.75, SD=0.60) showing significant differences with p-values of less than .001. Empathy was higher in inclusive settings (Mean=3.16, SD=0.49; p=0.039). Overall EI was higher in segregated settings (Mean=2.81, SD=0.47; p<.001).

Conclusion: The educational setting is a significant determinant of EI levels in hearing-impaired students, with segregated education systems showing more favorable outcomes in EI development, except for Empathy. This insight is crucial for devising educational strategies and healthcare interventions that support the emotional and social well-being of hearing-impaired students.

Keywords: Hearing Impairment, Emotional Intelligence, Segregated Education, Inclusive Education, Cross-Sectional Study, Psychological Well-Being, Special Needs Education, EI Measurement, Educational Psychology, Social Development, SPSS Analysis.

INTRODUCTION

In the global landscape, approximately 360 million individuals, including 32 million children, suffer from hearing impairment, with South Asia experiencing the highest prevalence of this condition among children. In Pakistan, the incidence of bilaterally profound hearing loss is notably high, affecting 1.6 per 1000 individuals, with around 150,000 cases of congenital deafness reported. Moreover, rural areas in Pakistan show a 7.9% prevalence of hearing impairment within the general population (2). Educational approaches for hearing-impaired students diverge into two systems: the Segregated Education System, where these students learn alongside peers with similar impairments, and the Inclusive Education System, which integrates them with hearing peers, advocating for their rights to admission, presence, participation, and success. The latter aims to empower hearing-impaired individuals by removing educational barriers and enhancing academic performance for all children (3). The concept of emotional intelligence plays a pivotal role in personal dedication to work and organizational efficacy (4, 5), given its significance in social skills and emotional adjustment, especially in the context of individuals with sensory impairments like hearing loss. Despite the vast number of people

affected by deafness worldwide, research on the emotional intelligence among the hearing-impaired, particularly within inclusive education settings in Pakistan, is markedly scarce.

Historical efforts, such as the founding of the Institute of the Deaf in Poland in 1817, highlight the long-standing endeavors to provide specialized education for the deaf (10). Research, including studies by Foster S. et al., underscores the varied quality of social interactions experienced by deaf students in mainstream educational settings, ranging from fulfilling social lives to feelings of isolation (11). Furthermore, a study conducted in Ethiopia's Gondar City revealed that deaf students face significant barriers to academic and social inclusion, stemming from communication challenges, inconsistent teaching methodologies, and lowered teacher expectations regarding their capabilities (12). These findings accentuate the challenges of integrating hearing-impaired students into mainstream education, aligning with the broader objective of SDG4, which advocates for inclusive and equitable quality education for all, expanding beyond the scope of universal primary education to encompass outcomes in reading, numeracy, and broader learning domains (13, 14).

This study endeavors to bridge the research gap on the emotional intelligence of hearing-impaired students in Pakistan, contrasting the experiences of those in segregated versus inclusive educational systems. By focusing on this underexplored area, the study aims to contribute to the integration of hearing-impaired students into mainstream educational institutes, thereby enhancing our understanding of the emotional intelligence of this demographic and supporting the creation of a more inclusive educational environment.

MATERIAL AND METHODS

This study employed a cross-sectional design to investigate the emotional intelligence among students with hearing impairments within segregated and inclusive educational settings across three divisions in Punjab, Pakistan. The methodology and sampling approach received ethical approval from the Social Sciences Review Committee of the University of Management and Technology (UMT), adhering to the principles outlined in the Declaration of Helsinki regarding research involving human subjects. Utilizing a non-probability purposive sampling technique, the research focused on a specific cohort of students with hearing impairments, ensuring a targeted examination of the subject matter.

The participant pool comprised 742 students with hearing impairments, drawn from secondary, higher secondary schools, and universities operating under segregated and inclusive education systems. Of these, 640 were enrolled in segregated educational institutions, while 102 attended schools and universities following an inclusive educational model. The selection criteria included students of both genders, from grade 9 onwards, attending both public and private institutions, and those utilizing hearing aids and cochlear implants to improve their hearing capabilities. However, students with co-morbid conditions were deliberately excluded from the study to isolate the impact of hearing impairment on emotional intelligence without confounding variables.

Data collection was meticulously conducted using a non-probability-purposive sampling technique, ensuring the recruitment of participants strictly adhering to the outlined inclusion criteria. This approach facilitated the gathering of relevant and significant data pertinent to the study's objectives. The assessment of emotional intelligence among the selected students was conducted through structured questionnaires and interviews, designed to elicit comprehensive information on their emotional intelligence competencies within their respective educational environments.

In processing and analyzing the collected data, the study employed the Statistical Package for the Social Sciences (SPSS) version 25. This analytical tool was instrumental in examining the data, allowing for a detailed and nuanced exploration of the differences in emotional intelligence between students in segregated and inclusive settings.

RESULTS

The analysis of emotional intelligence across different educational setups for students with hearing impairments revealed significant disparities in several components. Students in the segregated system exhibited a higher mean score in Interpersonal Skill (3.10 with an SD of 0.63) compared to those in the inclusive system (2.67 with an SD of 0.68), a difference supported by a t-value of -6.37 and a p-value of less than .001. Similar patterns were observed in Self-Regard and Assertiveness, with segregated scores of 2.69 (SD 0.63) and 2.75 (SD 0.60) outperforming the inclusive scores of 2.36 (SD 0.74) and 2.32 (SD 0.76), respectively, both with p-values of less than .001. Emotional Self-Awareness also differed significantly, with higher scores in the segregated system (2.71, SD 0.56) compared to the inclusive system (2.52, SD 1.03), yielding a t-value of -2.87 and a p-value of 0.004. Interestingly, Empathy was the sole component where inclusive education scored higher (3.16, SD 0.49) than segregated (3.03, SD 0.62), with a t-value of 2.06 and a p-value of 0.039. Impulse Control was markedly better in the segregated system (2.64, SD 0.56) versus the inclusive system (2.40, SD 0.58), with a t-value of -3.93. Flexibility, Problem Solving, and Stress Tolerance showed smaller differences and were not statistically significant. However, the overall Emotional Intelligence mean was significantly higher in the segregated system (2.81, SD 0.47)

compared to the inclusive system (2.61, SD 0.49), with a t-value of -4.07 and a p-value of less than .001, suggesting that the segregated educational context may offer a more conducive environment for the development of emotional intelligence in hearing-impaired students.

Table 1 Scale and sub-scales Comparison

Scale and sub-scales	Inclusive Mean	Inclusive SD	Segregate Mean	Segregate SD	t-value	p-value
Interpersonal Skill	2.67	0.68	3.10	0.63	-6.37	<.001
Self-Regard	2.36	0.74	2.69	0.63	-4.70	<.001
Assertiveness	2.32	0.76	2.75	0.60	-6.36	<.001
Emotional Self-Awareness	2.52	1.03	2.71	0.56	-2.87	0.004
Empathy	3.16	0.49	3.03	0.62	2.06	0.039
Impulse Control	2.40	0.58	2.64	0.56	-3.93	<.001
Flexibility	2.73	0.51	2.80	0.60	-1.05	0.293
Problem Solving	2.66	0.67	2.76	0.62	-1.56	0.119
Stress Tolerance	2.54	0.52	2.61	0.56	-1.11	0.269
Optimism	2.82	0.50	2.89	0.57	-1.16	0.245
Overall Emotional Intelligence	2.61	0.49	2.81	0.47	-4.07	<.001

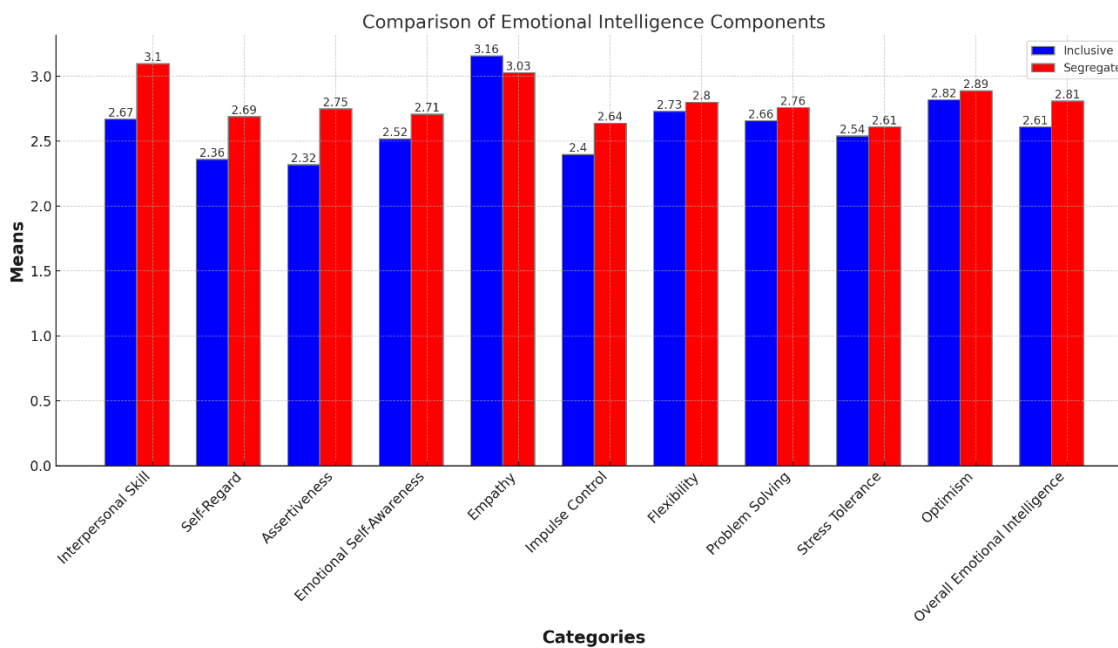


Figure 1 Comparative Emotional Study Characteristics

The bar graph presents a comparison of emotional intelligence components between students in inclusive and segregated education systems. Students in segregated systems score higher across most categories, particularly in Interpersonal Skill (3.1 vs. 2.67), Self-Regard (2.69 vs. 2.36), and Assertiveness (2.75 vs. 2.32). In

contrast, inclusive education students score higher in Empathy (3.16 vs. 3.03). The overall Emotional Intelligence mean score is also higher for segregated (2.81) compared to inclusive (2.61). Flexibility and Problem Solving show negligible differences between the two groups, with scores of 2.73 vs. 2.80 and 2.66 vs. 2.76, respectively.

DISCUSSION

The study undertaken provided a cross-sectional analysis to discern the variance in emotional intelligence (EI) among hearing-impaired students within segregated and inclusive educational frameworks. The examination harnessed a quantitative methodological approach and drew upon an emotional intelligence scale to evaluate data from 742 hearing-impaired students in Punjab, Pakistan. The instrument employed, a standardized EI scale, assessed a spectrum of emotional competencies, including Self-Regard, Assertiveness, Emotional Self-Awareness, and others, yielding results that highlighted significant distinctions between the two educational models.

In the segregated environment, students demonstrated superior scores across most EI dimensions, notably in Interpersonal Skill (Mean=3.10, SD=0.63), Self-Regard (Mean=2.69, SD=0.63), Assertiveness (Mean=2.75, SD=0.60), and Emotional Self-Awareness (Mean=2.71, SD=0.56) with p-values all below .005, indicating a robust statistical significance (16-19). Conversely, students from inclusive settings outperformed their segregated counterparts in Empathy alone (Mean=3.16, SD=0.49), with a t-value of 2.06 ($p=0.039$). The overall EI, however, was notably lower for the inclusive group (Mean=2.61, SD=0.49) compared to the segregated group (Mean=2.81, SD=0.47) (16-19). These findings parallel those from related research, where sensory-impaired students exhibited varied EI levels, with empathy often scoring higher in contrast to other EI components (17, 18).

The implications of such findings are manifold. The study's strength lies in its substantial sample size and the diversity of educational settings across a significant geographical area, enhancing the generalizability of the results. However, it did not escape certain limitations. The cross-sectional nature of the research restricts the ability to establish causality, and the absence of longitudinal data curtails the capacity to track EI development over time.

The disparities in EI scores between segregated and inclusive settings beckon a call to scrutinize contributory factors more deeply. These may include the quality of peer interactions, the proficiency and training of educators, and the accessibility of supportive services and resources. Moreover, contextual elements such as family dynamics, cultural attitudes, and prevailing social norms regarding disability may play pivotal roles in shaping the emotional intelligence of hearing-impaired students.

The study's revelations urge educational policymakers to consider these findings in curriculum design and the professional development of educators. Additionally, it highlights the necessity for enhanced support mechanisms for hearing-impaired students, tailored to nurture their emotional competencies more effectively.

Future research must embark upon longitudinal studies to track the evolution of EI among hearing-impaired individuals and determine the impact of various educational and social environments on their EI development. There is also a need to evaluate the role of assistive technologies and other mediating tools in augmenting EI within different educational contexts for these students. This holistic approach will not only solidify the findings of the present study but will also pave the way for more inclusive and emotionally intelligent educational landscapes for hearing-impaired students.

CONCLUSION

The conclusion of this study underscores the marked differences in emotional intelligence among hearing-impaired students from segregated versus inclusive educational settings, with the former group demonstrating higher EI scores overall, except for empathy. These results indicate potential implications for human healthcare, suggesting that the educational environment can significantly influence the emotional development of hearing-impaired individuals. Therefore, it is imperative for healthcare providers, educators, and policymakers to collaborate in creating supportive educational strategies that foster emotional intelligence, particularly in inclusive settings, to promote better psychosocial outcomes and overall well-being for hearing-impaired students.

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