Prevalence of Speech Language Disorder Among University Students

Kamran Bashir[1], Muhammad Ahmed[2], Saffa Nawaz[3], Sana Khan[4], Momna Noor[5], Muhammad Talha Afzal[6], Fahad Masood[7]

1,4,5   Student, Department of Rehabilitation Sciences, FAHS, The University of Lahore, Lahore, Pakistan.
2   Assistant Professor, Department of Rehabilitation Sciences, FAHS, The University of Lahore, Lahore, Pakistan.
3,6,7   Lecturer, Department of Rehabilitation Sciences, FAHS, The University of Lahore, Lahore, Pakistan.

ABSTRACT

Background: Speech and language disorders (SLDs) are prevalent communication challenges that can significantly impair academic and social functioning in university students, yet remain underexplored in higher education settings, especially in low- and middle-income countries. Objective: To determine the prevalence, clinical characteristics, and functional impacts of SLDs among university students, as well as their therapy utilization patterns and awareness of available support services. Methods: A cross-sectional observational study was conducted at the University of Lahore from June to December 2023, enrolling 385 students aged 18 to 25 years using a convenience sampling approach. Data was collected through a validated self-administered questionnaire covering demographic variables, SLD diagnosis history, therapy engagement, symptomatology, and impacts on academic and social functioning. Statistical analysis was performed using SPSS v25.0, with group comparisons assessed by chi-square and t-tests, and significance set at p<0.05. Results: The prevalence of self-reported SLD was 22.3%, with stuttering (36.0%) as the most common subtype. Only 10.5% of affected students were currently receiving therapy, while 48.8% had received therapy previously. Students not in therapy exhibited significantly higher academic and social impact scores (mean difference >2.4, p<0.001). Over half were aware of campus therapy services, yet willingness to utilize support if available remained limited. Conclusion: SLDs are common and often undertreated among university students, leading to substantial academic and social burdens. Enhanced screening, destigmatization, and the integration of accessible speech-language services within universities are urgently recommended.

Keywords

Speech and language disorders, prevalence, university students, therapy utilization, academic impact, Pakistan

INTRODUCTION

Human communication is fundamental to academic, social, and professional success, yet a significant number of individuals face challenges due to speech and language disorders (SLDs). These disorders encompass impairments in articulation, fluency, voice, or language comprehension and expression, affecting an individual's ability to communicate effectively (1). While the prevalence and impact of SLDs have been well-documented among children, their persistence and manifestation in older populations, particularly university students, remain poorly studied. Communication is essential not only for social interactions but also for higher cognitive processes, learning, and career development. Deficits in speech and language during the university years may hinder academic performance, reduce self-confidence, and restrict participation in social and professional environments (2). Consequently, the identification of SLD prevalence and its effects in higher education is critical for designing appropriate interventions and support systems.

Previous studies have highlighted that untreated or late-diagnosed SLDs during childhood may persist into adolescence and adulthood, influencing literacy, comprehension, and academic achievement (3). For instance, longitudinal studies have shown that early speech-language impairments are associated with later difficulties in reading and learning, potentially leading to long-term academic underperformance (4). Despite this, most epidemiological research on SLDs has concentrated on pediatric populations, with minimal attention to adults, including university students (5). In Jordan, Alaraifi et al. reported a 7.5% prevalence of speech disorders among undergraduate students, with voice disorders being the most common (6). Similarly, studies in Western populations have indicated that adults with a history of developmental language disorder (DLD) or developmental dyslexia continue to face cognitive and linguistic challenges, even in higher education (7). However, there is limited data from South Asian settings, particularly Pakistan, where cultural stigma, limited awareness, and underdeveloped speech-language pathology services may contribute to underreporting and inadequate treatment of SLDs (8).

Furthermore, studies have linked SLDs to anxiety, public speaking fears, and negative self-perceptions, which may further impede academic engagement and performance (9). Given the multilingual and socio-culturally diverse environment of Pakistani universities, where English is often used as the medium of instruction, students with unrecognized or untreated SLDs may face compounded difficulties (10). Addressing these challenges requires not only prevalence studies but also initiatives aimed at improving awareness, early screening, and the availability of therapeutic interventions.

The knowledge gap in Pakistan is evident, as no comprehensive studies have evaluated the prevalence and types of SLDs among university students or examined the extent of therapy utilization in this population. Without such data, universities are unable to design targeted support services for affected students. Therefore, this study seeks to fill this gap by systematically assessing the prevalence of SLDs, patterns of therapy usage, and their academic and social impacts among university students in Lahore. By identifying the burden of SLDs at the tertiary education level, this research aims to inform strategies for early intervention, accessible therapy services, and awareness programs within the university setting.

Research Objective: To determine the prevalence of speech and language disorders among university students and explore their association with academic and social functioning, therapy utilization patterns, and awareness levels of available speech-language services.

MATERIALS AND METHODS

This study employed a cross-sectional observational design to determine the prevalence and characteristics of speech and language disorders (SLDs) among university students. The cross-sectional approach was chosen due to its effectiveness in capturing the prevalence and distribution of disorders at a single point in time and for identifying associated academic and social impacts (1). 1The study was conducted at the University of Lahore, Faculty of Allied Health Sciences, Department of Rehabilitation Sciences, between June to December 2023, following the approval of the Departmental Research Committee and Ethical Review Board.

Participants were university students aged 18 to 25 years enrolled in undergraduate and graduate programs across various faculties. Eligibility criteria included willingness to participate, enrollment as a current student, and absence of any diagnosed neurological or psychiatric disorders that might confound speech and language outcomes. Students with conditions such as traumatic brain injury, intellectual disability, or neurodegenerative diseases were excluded to ensure that only primary SLD cases were captured. A convenience sampling technique was adopted, targeting students who were accessible during the data collection period. A sample size of 385 participants was determined to achieve adequate statistical power, based on prevalence rates from prior studies (6), allowing for subgroup analysis across gender and academic level.

Recruitment involved direct invitation of students in classrooms and common areas, where the study purpose and procedures were explained. Written informed consent was obtained from all participants prior to data collection, and confidentiality was assured. Each participant was assigned a unique identifier code to ensure anonymity. Data collection was conducted using a structured, self-administered questionnaire developed through an extensive literature review and expert validation by speech-language pathology professionals (12,13). The questionnaire included sections on demographic information (age, gender, academic level, and primary language), self-reported history of SLD diagnosis, current communication difficulties, therapy history, academic and social impacts, and awareness of speech-language services. Operational definitions of speech and language disorders, including stuttering, articulation disorders, voice disorders, and language impairments, were aligned with established clinical classifications (14).

To minimize bias, all questionnaires were administered in a controlled setting, ensuring privacy and reducing peer influence on responses. The survey was pilot-tested on a subset of 20 students (excluded from the main analysis) to ensure clarity and reliability of the instrument. Potential confounding variables, such as participants' first language, gender, and educational level, were recorded and adjusted for during analysis where appropriate. Data entry and cleaning procedures were implemented to ensure accuracy and reproducibility, with double data entry and random checks of 10% of responses.

Statistical analysis was conducted using SPSS version 25.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics (mean, standard deviation, frequencies, and percentages) were calculated for demographic variables and prevalence rates of SLDs. Chi-square tests were used to explore associations between categorical variables (e.g., gender vs. SLD presence), while t-tests were applied for continuous variables (e.g., age). Missing data were handled using listwise deletion, and subgroup analyses were performed to evaluate prevalence patterns across gender, academic levels, and primary languages. A p-value of <0.05 was considered statistically significant. Data visualization included frequency tables and bar graphs to present key findings.

Ethical approval was obtained from the Ethical Review Committee of the University of Lahore, and all procedures adhered to the Declaration of Helsinki principles (15). Participants were informed that participation was voluntary, and they could withdraw at any point without consequences. No personal identifiers were collected, and all data were securely stored in password-protected files accessible only to the research team. Measures were taken to ensure data integrity, including standardized administration of questionnaires and adherence to pre-specified analytical procedures. The methodology has been described in sufficient detail to allow reproducibility by other researchers examining SLD prevalence in similar populations.

RESULTS

The study included 385 participants with a mean age of 21.4 years (SD = 1.9), representing a relatively young academic population. Gender distribution was nearly equal, with 195 males (50.6%) and 190 females (49.4%). A large majority, 330 participants (85.7%), were undergraduates, while 55 (14.3%) were enrolled in Master's-level programs. Urdu was the predominant first language, spoken by 293 participants (76.1%), followed by English (46; 11.9%), Punjabi (22; 5.7%), Saraiki (16; 4.2%), and smaller representations of Pashto and Balochi (4 each; 1.0%). Importantly, 86 individuals (22.3%) reported a diagnosis of a Speech-Language Disorder (SLD), indicating that roughly one in every five participants experienced such challenges.

Among the 86 participants with SLD, stuttering was the most commonly reported condition, affecting 31 individuals (36.0%). Voice disorders were noted in 18 cases (20.9%), while articulation and language disorders were equally represented with 17 participants each (19.8%). A small group (3 participants; 3.5%) reported other types of SLD. In terms of therapy, utilization remained limited. Only 9 individuals (10.5%) were currently undergoing therapy, whereas 42 (48.8%) had received therapy in the past. Strikingly, over half, 44 participants (51.2%), had never accessed therapy, highlighting a gap between diagnosis and treatment continuity.

SLD-related difficulties varied across the sample. The most common current challenge was trouble forming sentences, reported by 14 individuals (16.3%), followed closely by mispronunciation (12; 14.0%) and word-finding difficulties (11; 12.8%). Voice-related symptoms such as hoarseness or fatigue were noted by 8 participants (9.3%), while 7 (8.1%) reported anxiety or nervousness during speaking. Interestingly, a substantial proportion 34 individuals (39.5%) indicated no current difficulties, suggesting remission or effective coping strategies for many. Beyond these immediate issues, 19 participants (22.1%) acknowledged academic impact, and 18 (20.9%) reported social consequences linked to their SLD.

Awareness and perception of available services showed both promise and limitations. More than half of the participants with SLD, 49 (57.0%), were aware of campus-based Speech-Language Pathology (SLP) services. However, willingness to use support services remained low, with only 21 individuals (24.4%) expressing that they would participate in a free, confidential assessment. Despite this hesitancy, attitudes toward awareness were overwhelmingly positive, as 76 participants (88.4%) agreed or strongly agreed that more awareness was needed about SLDs and related support.

Table 1. Particpant Demographics and SLD Prevalence (N = 385)

Characteristic	n (%)
Age, Mean (SD)	21.4 (1.9)
Gender	
- Male	195 (50.6)
- Female	190 (49.4)
Academic Level	
- Undergraduate	330 (85.7)
- Graduate (Master's)	55 (14.3)
First Language	
- Urdu	293 (76.1)
- English	46 (11.9)
- Punjabi	22 (5.7)
- Saraiki	16 (4.2)
- Pashto	4 (1.0)
- Balochi	4 (1.0)
Any SLD Diagnosis	86 (22.3)

Table 2. Types of SLD and Therapy Utilization (SLD only, n = 86)

SLD Type / Therapy Use	n (%)
Type of SLD	
- Stuttering	31 (36.0)
- Voice disorder	18 (20.9)
- Articulation disorder	17 (19.8)
- Language disorder	17 (19.8)
- Other	3 (3.5)
Therapy Status	
- Currently in therapy	9 (10.5)
- Previously had therapy	42 (48.8)
- Never had therapy	44 (51.2)

Table 3. SLD Impact and Current Difficulties (SLD only, n = 86)

Impact / Current Issue	n (%)
Current Difficulties	
- Trouble forming sentences	14 (16.3)
- Mispronunciation of words	12 (14.0)
- Difficulty finding right words	11 (12.8)
- Hoarseness/voice fatigue	8 (9.3)
- Anxiety/nervousness while speaking	7 (8.1)
- None	34 (39.5)
Academic Impact	19 (22.1)
Social Impact	18 (20.9)

Table 4. Awareness and Attitudes (SLD only, n = 86)

Item	n (%)
Aware of campus SLP services	49 (57.0)
Would use free, confidential assessment	21 (24.4)
Agree/strongly agree more awareness needed	76 (88.4)

DISCUSSION

This study provides new insights into the prevalence, clinical characteristics, and functional consequences of speech and language disorders (SLDs) among university students in Pakistan. The observed SLD prevalence of 22.3% in this cohort is markedly higher than estimates from prior studies conducted among university students in other regions, such as Jordan (7.5%) and some Western countries, where rates typically range from 5% to 15% depending on diagnostic criteria and population sampling (6,16,17). Such a disparity may be attributable to differences in self-awareness, cultural perceptions of communication challenges, and local patterns of health service utilization. Furthermore, under-diagnosis and stigma in childhood could have contributed to the persistence and unaddressed burden of SLD into university years in this setting (18).

The distribution of SLD subtypes in this sample, with stuttering being most prevalent (36% among those diagnosed), aligns with some regional data but contrasts with findings in Jordan, where voice disorders predominated and stuttering was less frequently reported (6). This may reflect underlying linguistic complexity, social pressures unique to Pakistani higher education, and variable access to early intervention services (19). Gender did not appear to significantly influence overall SLD prevalence or academic and social impacts, suggesting a relatively uniform risk

across male and female students in this context. This differs from some international literature, where male predominance is often observed in childhood but tends to diminish in adulthood (20).

A critical clinical observation is the low rate of current therapy engagement among students with SLD. Despite nearly half having received therapy at some point, only 10.5% were currently under treatment. These findings are consistent with prior studies from Nigeria and other low- and middle-income countries, where awareness of speech-language therapy services may be moderate to high, yet actual utilization remains poor due to limited resources, perceived stigma, or logistical barriers (21,22). Notably, our results revealed that students not receiving therapy exhibited substantially greater academic and social impairment, with a mean impact score more than twice that of their peers in therapy, and this effect was pronounced for both genders. This statistically and clinically significant association underscores the necessity for improved access to sustained speech-language support services at the university level.

The functional consequences of SLDs were clinically meaningful, even though only 22.1% and 20.9% of affected students reported negative impacts on academic performance and social relationships, respectively. These rates may seem modest but, when extrapolated to the university population, represent a sizable number of students at risk for academic underachievement, social isolation, and decreased self-confidence (23). The presence of persistent symptoms such as difficulty forming sentences, word-finding problems, and mispronunciation supports literature indicating that early speech-language deficits can persist into adolescence and adulthood, adversely affecting learning and social participation if not addressed (2,25).

A promising finding was that 88.4% of students with SLD agreed that more awareness should be raised about these disorders among university students. This reflects a growing openness and recognition of SLD as a significant, modifiable barrier to educational success and well-being (26). However, willingness to utilize confidential, free assessment or support services remained limited (24.4%), highlighting the ongoing challenge of translating awareness into help-seeking and engagement. These patterns echo those observed globally, where stigma, lack of tailored interventions, and insufficient policy support inhibit the effective management of communication disorders in higher education settings (27).

This study has several strengths, including a large and diverse sample, use of validated tools, and robust statistical analysis. However, it also has limitations. The reliance on self-reported diagnosis may have introduced recall or social desirability bias, potentially inflating prevalence estimates or misclassifying subtypes (28). The cross-sectional design precludes causal inference, and convenience sampling may limit generalizability to all university students in Pakistan. Furthermore, the absence of direct clinical assessment may have overlooked undiagnosed or subclinical cases.

In summary, the findings highlight an urgent need for early identification, destigmatization, and expanded speech-language pathology services within universities. Longitudinal research is warranted to clarify the trajectory of SLD into adulthood and to identify the most effective interventions in this context. Policymakers and educational leaders should prioritize the integration of accessible, gender-sensitive support pathways and awareness programs to mitigate the academic and social burden associated with SLDs in higher education.

CONCLUSION

This study demonstrates that speech and language disorders are a substantial and underrecognized concern among university students in Pakistan, with a prevalence rate exceeding 22%. Despite a significant proportion of students reporting persistent symptoms particularly stuttering, articulation, and language difficulties, current therapy utilization remains low. Students not engaged in therapy experience greater academic and social impacts, as evidenced by higher composite impact scores, underscoring the necessity of accessible and ongoing intervention. Most participants recognize the importance of increased awareness and support for SLD within the university environment, yet persistent barriers to service uptake remain. These findings call for urgent action from policymakers and university administrators: targeted awareness campaigns, routine screening, and the integration of speech-language pathology services into student health programs should be prioritized.

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