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"UNHEARD VOICES: GAPS IN MEDICAL STUDENTS' KNOWLEDGE OF SPEECH-LANGUAGE PATHOLOGY"

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Abstract

Background: *Speech-language pathology can be invaluable in the prevention and management of communication and swallowing disorders as well as their assessment. The fact notwithstanding, little is known about the awareness regarding SLP among the medical students in Pakistan despite its clinical importance.*

Objective: *This paper evaluated the knowledge on speech-language disorders and the scope of SLP with undergraduate medical students at Saidu Medical college, Swat.*

Methods: *A cross sectional descriptive survey study was done in 150 MBBS students in third, fourth, and final year using simple random sampling method. The questionnaire consisted of a semi-structured questionnaire based on validated tools to glean data regarding demographics, prior knowledge on admission to communication disorders, awareness of SLP, and education exposure, referral patterns and interest in this profession. The chi-square tests, descriptive statistics and Pearson correlation done using SPSS v20.*

Findings: *The overall level of awareness about the SLP and communication disorders was not significant across all the years with students in the final year students recording the highest level of awareness in dysphagia ($p = 0.026$), the prevention role of early intervention ($p = 0.001$), referral pathways ($p = 0.044$) and diagnosis /treatment capacity ($p = 0.002$). Conscientious awareness that there are receptive and expressive language disorders was still low across the classes. Means of interest in pursuing SLP as career settled in the middle range and significance of academic year was not very strong.*

Conclusion: *The little awareness of SLP among the medical students suggests the necessity of structurally developed curriculum integration and clinical exposure. Training and interdisciplinary practice might enhance early identification, competency of referral and patient outcomes in the domain of communication and swallowing disorders.*

INTRODUCTION

Speech-language pathology (SLP) is a healthcare discipline that specializes in preventing, assessing, diagnosing and treating communication and swallowing disorders of all ages. These disorders can be caused by several factors, which are: neurological impairments, brain injury, intellectual disabilities, hearing loss, development problems, cleft lip and palate, drug addiction, degenerative diseases like Parkinson disease (Casper & Leonard, 2006; Dodd, 2013). SLP has become an established allied health profession worldwide, which draws on evidence-based clinical practice and functions as a member of interdisciplinary medical teams with physicians, dieticians, nurses, occupational therapists and social workers (ASHA, 2007).SLP has more to do with language, voice, fluency, cognitive-communication skills, and swallowing function besides speech (Bushell, n.d.; Cicerone et al., 2011). With the right intervention, quality-adjusted life years (QALYs) and reduction of disability-adjusted life years (DALYs) of patients can be drastically improved (Calderon, 2000). Nevertheless, there is an over-representation of SLP services in major urban centers in most developing nations and people in rural and semi-urban areas have minimal or no access to such services. In this case, the Malakand Division of Khyber Pakhtunkhwa is the division that lacks both a public and a private sector SLP facility, as sometimes there are no patients who receive treatment, and some of them must be referred to a metropolis.

This failure to provide such services is also witnessed by the fact that there is also low awareness amongst the healthcare industry professionals as well as policymakers (Greenwood, Wright, & Bithell, 2006). Medical students; specifically, might experience a speech-language disorder over their coursework or clinical rotation however, unless they were formally identified in the curriculum and provided exposure to practice, they were not likely to carry out identification, management and referral of such a case effectively (Byrne & Pettigrew, 2010). In the United Kingdom, evidence showed that around one-third of surveyed persons had never heard of speech-language therapy and that the awareness level was considerably low among the males and the minorities. Similar results have been found abroad, such as in Jordan and Malaysia (Xinyi, Ahmad, & Vesualingam, 2018), which indicates that the situation is international and SLP awareness is lacking among both medicine professionals and citizens.

The issue of SLP awareness among medical students is of utmost importance since medical students are in a position to influence early identification and referral of persons with speech language disorders. Aphasia, dysphagia, and stuttering are all disorders that usually necessitate multidisciplinary approach and the sooner the SLP services are referred, the better patient outcomes may be (Smithard et al., 1997). In the absence of such awareness, there is a likelihood that very preventable/treatable conditions will advance to contribute to long term disability and poor quality of life. It is against this background that the current study aimed at assessing the extent of ignorance about speech-language disorders and the position of speech-language pathology amongst students in their third, fourth, and final years of MBBS degree program of Saidu Medical College, Swat. Results are anticipated to feed into medical curricula, improve interdisciplinary interactions, and feed into policy recommendations of contextualizing SLP into medical education and healthcare systems in Pakistan.

Literature Review

Speech and language disorders broadly cover a large number of damages to communication as well as swallowing functions of the body. Speech disorders in most cases include problems of articulation, stuttering, or problems with the voice that impair sound quality in terms of pitch selection, volume, or resonance (Dodd, 2013). The language disorders can either be receptive where an individual experiences troubles understanding spoken or written language or expressive where the individual experiences problems constructing fluent measure or discusses writing (Cicerone et al., 2011). Moreover, there are cognitive-communication disorders, including weaknesses in attention, memory, and problem-solving, as well as

dysphagia, or the inability to swallow the food, which can greatly influence the state of nutrition and the health in general (Bushell, n.d.; Smithard et al., 1997).

It is very important to intervene early. Studies indicate that the cognitive, emotional and social development of children has a close connection to speech and language (Svirsky, Teoh, & Neuburger, 2004). Inability to diagnose and treat in time may lead to loss of development milestones and permanent schooling inadequacies (Pierangelo & Giuliani, 2002). Speech-language therapy does not only focus on restoring communication skills, but also on socializing, self-sufficiency, and quality of life (Jacobs et al., 2004). The treatment may vary between verbal stringency and breath training to the introduction to augmented and alternative communication devices as per the severity and kinds of disorder (Villa, Thousand, & Nevin, 2008; Schraeder, 2016).

Across the rest of the world, research shows mixed results concerning the presence of awareness of speech-language pathology at the level of the population and at the professional awareness level. A survey conducted in the United Kingdom showed that about a third of the respondents had never heard of speech-language therapy and that its study was even less well known among the male population and the minority ethnic groups (Greenwood, Wright, & Bithell, 2006). The same can be said about Jordan, where the knowledge of SLP was previously low beyond instances of stuttering , and Malaysia, where medical workers showed diminished awareness of dysphagia and the work of the SLP (Xinyi, Ahmad, & Vesualingam, 2018).Among the healthcare learners, there is disparity in the knowledge of SLP that is influenced by exposure and training. According to Byrne and Pettigrew (2010), allied health students acknowledged the significance of teamwork in the treatment of stroke patients and had fair understanding of the role of SLP concerning conditions like aphasia and dysphagia, yet were not sufficiently informed of participation in disorders of acquisition like alexia and agraphia. On the same note, similarly, Felsher and Ross (1994) stated that the level of knowledge concerning the responsibilities of SLPs was high when it came to the recognition of widely-met disorders but low in less specific areas, with clinical education deficiencies being a factor that required expansion. Low awareness is also impaired by limited formal SLP programs in medical curriculum and lack of special services in most areas in Pakistan. Lacking knowledge, the speech-language disorders will not be recognized by medical graduates, which leads to delays in referrals and treatment. Since early intervention and interdisciplinary management were proved to be effective, informing medical students about their importance is an essential move in the working process on patient care outcomes in communication and swallowing disorders.

Methods And Materials

It is a cross-sectional descriptive survey that was done at Saidu medical college (SMC), Swat, Khyber Pakhtunkhwa, Pakistan to test the level of awareness of speech-language problems in undergraduate medical students. This sample population was composed of third, fourth, and final year MBBS students, a sample size of 150 was adopted where 50 students were taken randomly through simple random sampling technique selected across the three academic years of study. Participants were recruited using eligibility criteria, which stipulated that only formally enrolled SMC students could take part and, more importantly, they had to have completed community medicine; those out of the first and second year, as well as those not exposed to that training, were not included. A semi structured questionnaire based on the previous literature (Greenwood, Wright, Bithell, 2006; Byrne and Pettigrew, 2010) was used to collect data and included two parts: demographic information (age, gender, academic year, and grade of the last examination). In the questionnaire 13 Likert items were also applied to determine awareness of communication disorders, speech-language pathology, curriculum provision, the types of communication disorders (e.g., stammering, aphasia, dysphagia), and prevention as well as referral The responses were on a 1 (Not at all aware) to 5 (Extremely aware) scale. The Advanced Study & Research Committee (ASRC) of the Isra Institute of Rehabilitation Sciences, Isra

University, Islamabad granted ethical approval and the Principal of SMC gave its permission. The roles of the participants, the confidentiality and informed consent were explained prior to face-to-face administration of questionnaire by the first author of the research. All data were analyzed in SPSS version 20 and mean, percentages, and frequencies were determined in demographic variables and awareness variables, chi-square tests were conducted to determine an association between levels of awareness with academic year, and Pearson correlation statistic was also used to ascertain the relationship between other domains of awareness; p-value of less than 0.05 indicated a significant association.

Results

Demographic Analysis

The demographic information shows that most of the participants were men medical students with a quite low percent of female respondents. The presence of this male dominance in the sample represents the gender ratio evident in most medical colleges in Pakistan and partly in areas like Khyber Pakhtunkhwa where culture, the socio-economic environment, could see the reduced enrollment of females in tertiary institutions. The three cohorts were well represented in terms of academic year to make sure that the views of different levels of medical education were collected. The results in the final exam were in general good and more than 70 percent of the students scored an A or A+ grade leading to the assumption that the sample was academically competent individuals. This is pertinent since it is possible to find a correlation between academic performance and awareness levels in special fields like speech-language pathology. Allowing different academic years in the study supports meaningful comparative work across awareness overload situations, and the high achieving status of the participants may provide a clue that the issue of lack of awareness may not be a question of poor academic attitude, but it may be due to gaps in curriculum or exposure. This baseline demographic picture is relevant in interpreting the results respective to the following findings concerning the levels of awareness.

Table 1. Demographic characteristics of participants (N = 145)

Variable	Category	n	%
Gender	Male	110	75.9
	Female	35	24.1
Academic Year	3rd Year	45	31.0
	4th Year	54	37.2
	Final Year	46	31.7
Grade (last exam)	A+	31	21.4
	A	76	52.4
	B	27	18.6
	C	4	2.8
	Fail	2	1.4

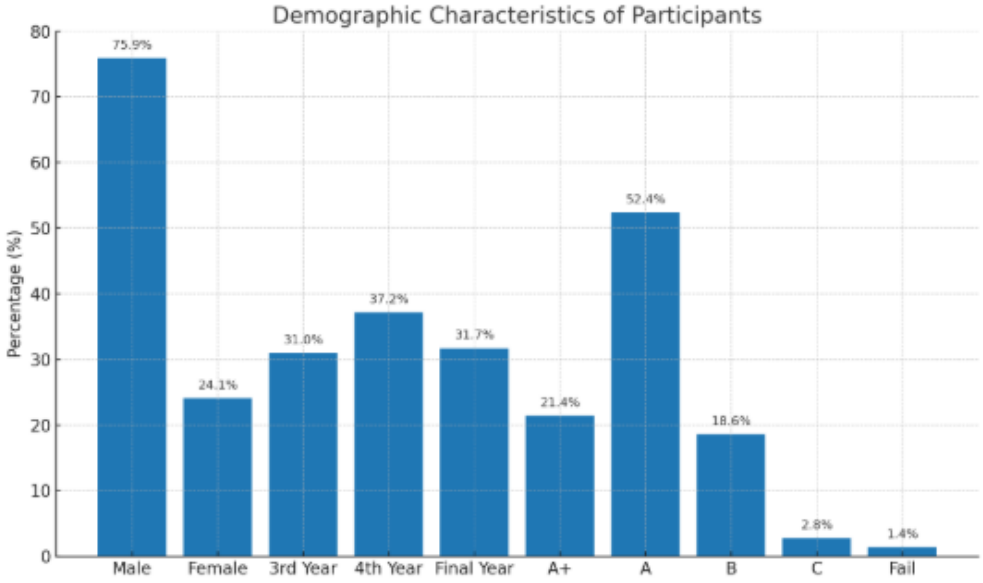

Figure No:1

Awareness of SLP and communication disorders by academic year

The outcomes demonstrate that overall awareness of communication disorders and speech-language pathology is very low throughout the years of study, and fewer than a half of the students during any year of study claim to have moderate or extreme familiarity. There was a small amount of increased awareness of communication disorders in final-year students (43.4%) and the inclusion of SLP in curriculum (28.2%), which implied that some exposure might occur by the end of medical school but it was limited in scope. Most intriguingly, third-year students expressed higher in this respect than any other group the perception of SLP as a medical discipline at an extreme level of awareness (26.7%) and this finding has passed the statistical test (p = 0.047). This perhaps may be caused by the relative newness of foundational medical sciences training (potentially resulting in an openness to new disciplines) as opposed to clinical rotations in later years (potentially leading to the restriction of attention to historically given specialties). The high correlation related to perception of curriculum inclusion based on academic year (p = 0.018) reflects the possible difference in student exposure based on year in possible specialty training (e.g. opt-in in electives or incidental). Nevertheless, the general low results indicate systematic curricular holes. The results coincide with the earlier literature in the UK and Jordan where poor levels of SLP knowledge among healthcare students were noted (Greenwood et al., 2006).

Table 2. Awareness of SLP and communication disorders by academic year

Awareness Item	3rd Year (n=45)	4th Year (n=54)	Final Year (n=46)	p-value
Communication disorders (Moderate+Extreme)	35.5%	35.2%	43.4%	0.321
Speech-language pathology (Moderate+Extreme)	24.5%	14.9%	26.1%	0.210
SLP in curriculum (Moderate+Extreme)	15.5%	7.5%	28.2%	0.018*
SLP as medical discipline (Extreme)	26.7%	11.5%	15.6%	0.047*

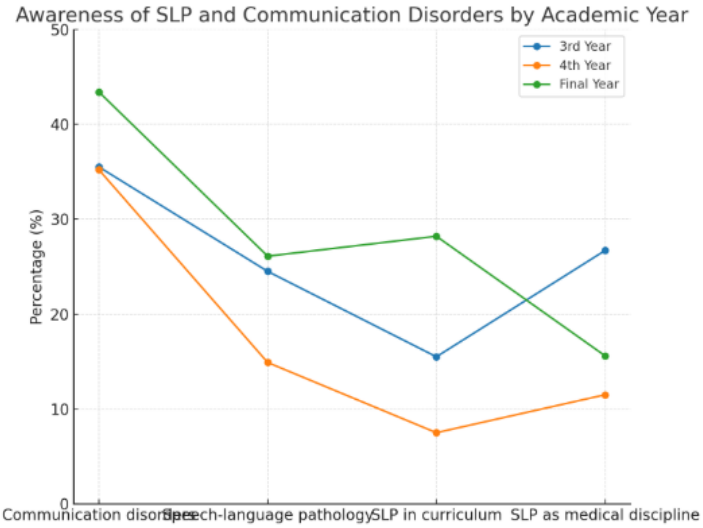

Figure No: 2

Awareness of specific disorders and prevention by academic year

The recognition of certain speech and language disorders changed over the years of study. The perception towards most categories was always higher among final years, especially awareness on dysphagia and swallowing problems ($p = 0.026$) and how dysphagia could be prevented by catching it in its early stages with early prevention ($p = 0.001$). The significant variance in terms of preventive awareness implies that the clinical exposure later in years can increase awareness about the importance of managing it early on which is important to avoid long-term disability. The knowledge of the terms stammering and aphasia was at the highest level, namely 53.8 percent among the study years of the fourth year, which could show the presence of clinical rotations in which they are more often in stroke and neurogenic diseases. The awareness of neurogenic disorders and the fluency demonstrated a slight increase across years which was not statistically significant. Less known were receptive and expressive language disorders perhaps because they had a less vivid manifestation which is the presence of speech disturbance as seen in stammering. Such trends are in line with the research findings regarding the fact that medical students tend to be more knowledgeable of more evident or more prominent diseases, and under-aware of less apparent disorders (Byrne & Pettigrew, 2010). The fact that the results with dysphagia were statistically significant and so was the prevention awareness, proves the importance of specific clinical education in filling the gap in knowledge .

Table 3. Awareness of specific disorders and prevention by academic year

Disorder/Aspect	3rd Year (Mod+Ext %)	4th Year (Mod+Ext %)	Final Year (Mod+Ext %)	p-value
Fluency & neurogenic disorders	31.8	40.4	44.4	0.412
Receptive & expressive disorders	33.3	28.8	35.5	0.589
Stammering & aphasia	40.9	53.8	37.8	0.222
Dysphagia & swallowing disorders	40.0	55.7	62.2	0.026*
Disorders preventable by early	24.5	24.1	52.2	0.001*

Disorder/Aspect	3rd Year (Mod+Ext %)	4th Year (Mod+Ext %)	Final Year (Mod+Ext %)	p-value
intervention				

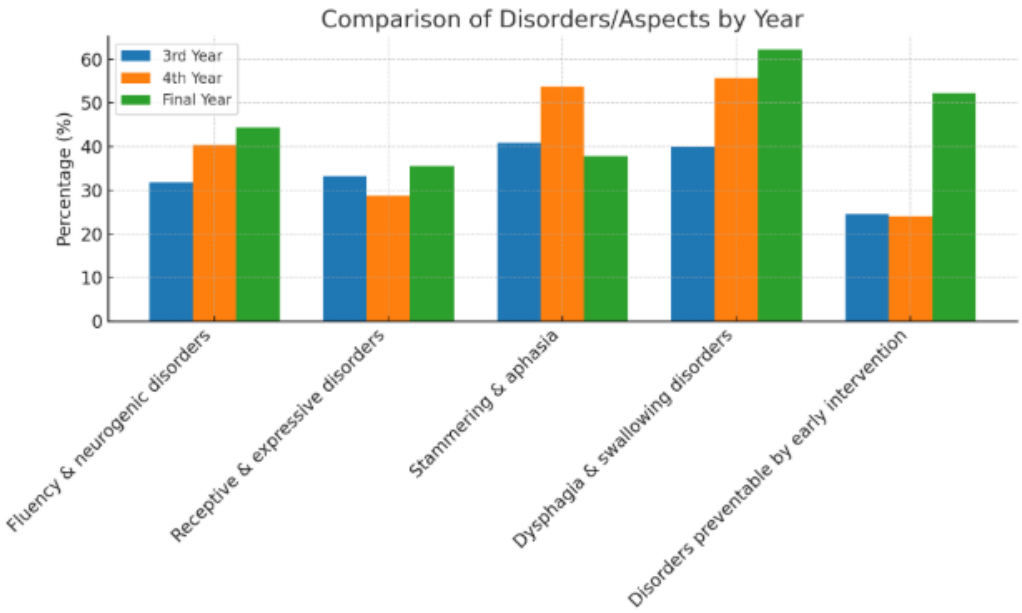

Figure No: 3

Referral knowledge, diagnosis/treatment awareness, and career interest

The final-year students portrayed much more acknowledgment of proper referral patterns (p = 0.044) and diagnosis/treatment potential (p = 0.002) when compared to the lower years. The increase is probably down to a build-up of clinical experience and involvement with MDTs through their final year, when specialist referrals tend to be more frequently discussed. Specifically, the rise in both awareness of diagnosis and treatment measured between the third year (31.1%) and last year (63.6%) demonstrates the significance of clinical training on identifying the extent of SLP in providing treatment to aphasia, dysphagia, and fluency disorders. Though interest in becoming an SLP as a career choice was not soaring in all the cohorts, it was higher among final-year students (54.5%) than the previous cohorts, perhaps because of the elevated awareness of its importance in treating patients. Nevertheless, the p-value (0.087) was not significant implying that level of interest depends also on other factors other than awareness that include career prospects and focus of the institution. These findings are similar to those in previous researches which indicate that familiarity with referral mechanism and the scope of clinical practice is much related to exposure as opposed to theoretical study (Felsher & Ross, 1994).

Table 4. Referral knowledge, diagnosis/treatment awareness, and career interest

Awareness Item	3rd Year (Mod+Ext %)	4th Year (Mod+Ext %)	Final Year (Mod+Ext %)	p-value
Referral pathways	31.1	27.8	47.7	0.044*

Awareness Item	3rd Year (Mod+Ext %)	4th Year (Mod+Ext %)	Final Year (Mod+Ext %)	p-value
Diagnosis & treatment	31.1	38.9	63.6	0.002*
Medical graduates joining SLP career	37.8	50.2	54.5	0.087

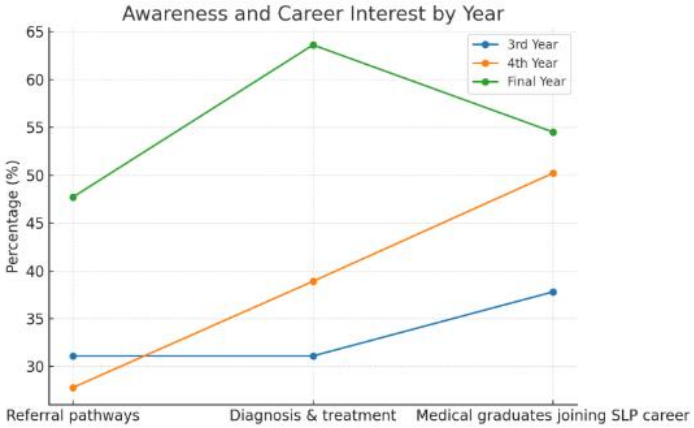

Figure No:4

Discussion

This research evaluated the knowledge of speech-language pathology (SLP) and disorders associated with them in undergraduate medical students in Saidu medical college, Swat. These findings indicate that general awareness levels in the majority of the fields are low to moderate and slightly higher levels among upper-year students, especially awareness of dysphagia, referring channels and diagnostic/therapeutic abilities. These results show that medical curriculum in later years might improve knowledge, but there are still gaps in early years of medical education and even in the 5th year, knowledge remains suboptimal. The awareness based on this study can be compared with that of the United Kingdom study wherein Greenwood et al. (2006) were able to complete one-third of their respondents could not tell anything about SLP and that the male participants and ethnic minority groups were as well much less informed compared to the rest. In a like manner, Al-Breik (2014) revealed that people in Jordan had little knowledge about SLP with stuttering understood the best. Malaysian studies also describe less awareness of healthcare professionals on clinical manifestations of dysphagia and understanding of the role of SLP in this condition (Xinyi, Ahmad, & Vesualingam, 2018).The increased awareness related to dysphagia and prevention by early intervention amongst the final-year students is in accordance to the literature which indicates that during clinical placement and rotations there is good learning opportunity in terms of interdisciplinary care (Byrne & Pettigrew, 2010). Nevertheless, the comparatively low awareness of receptive and expressive language disorders, yet have enormous effects on communication, is an international phenomenon where less visible conditions, are under-recognized by medical students (Felsher & Ross, 1994). This implies that it requires organised instructions focusing more on the entire range of the speech-language disorders and not necessarily on more pronounced or acute ones.

The level of knowledge on referral pathways and diagnosis/treatment awareness improved considerably with each academic level, which would speak in favor of the fact that multidisciplinary teams result in greater awareness of the role of the SLP. However, the insignificant

increase in the interest in pursuing SLP as a career across the years is important as it signifies that mere awareness might not be enough to attract medical graduates to this field. Perceived job opportunities, earning capacity and institutional encouragement of the discipline are most likely to determine career choice.Policy-wise, the results call upon a serious discussion of including SLP-related matters in the MBBS curriculum in Pakistan. Such an integration may involve lectures, workshops, or clinical rotation in the rehabilitation units to enhance awareness and referral competence. Lack of public or private SLP facilities in the Malakand Division is an additional challenge that makes patient care difficult due to a lack of early referral and treatment opportunities. Combined with the substantial potential impact of SLP on the outcomes, including quality-adjusted life years (QALYs) and disability-adjusted life years (DALYs), the need to raise awareness about SLP in future medical workers is a fundamental approach to improving the outcomes of patients.

Conclusion

This research indicates that MBBS students in the Saidu Medical College have a poor overall level of awareness of speech- language pathology and associated disorders but have small improvements of the students in final year whereby they were found to be better equipped with recognizing dysphagia, the pathway of referrals, diagnosis and treatment among others. Nevertheless, the understanding of such less apparent conditions like receptive and expressive language disorders is incomplete even in the last year. Such results indicate that the insufficient curricular presentation and direct contact with speech-language pathologists are the factors that cause a knowledge gap. Lacking proper knowledge, trainee medical professionals might fail to realize the possibilities of early detection, correct referral and intervention, which could result in avoidable disabilities connected with communication and lower quality of life of the patient.

Recommendations

In order to fill these gaps, learning on speech-language pathology should become an integral part of medical curricula in Pakistan with lectures, case based discussions and clinical placements in rehabilitation and ENT departments. Conducting of interdisciplinary workshops with the speech-language pathologists could offer a hands-on experience to the diagnosis, treatment, and referral of communication and swallowing disorders. There is also the possibility of creating awareness campaigns in the medical colleges helping to spread awareness of the scope and effects of SLP. On a policy level, there needs to be coordination between regulators of medical education and rehabilitation agencies in order to formally incorporate SLP training in MBBS curriculums especially in the underserved areas such as the Malakand Division where specialized services are unavailable. Not only will such measures help to improve patient outcomes, but it will also enhance interdisciplinary healthcare delivery in Pakistan

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