



Research Significance of Clinical Linguistics for Children on Language Speech Therapy in Pakistan: A Paediatric Survey Research

Dr. Nawaf Al Anazi , Dr. Ghassan Adnan Hasan, Dr. Tarig Karar, Prof. Anees Ahmad Ansari, Dr. Zafar Iqbal, Dr. Muhammad Khalid Mehmood Sajid

Associate Professor and Dean, College of Applied Medical Sciences, King Saud bin Abdulaziz University for Health Sciences, Al-Ahsa, Saudi Arabia.
King Abdullah International Medical Research Centre, Al-Ahsa, Saudi Arabia

Assistant Professor, English Language Centre, Preparatory Year Deanship, Applied Sciences College, King Faisal University, Alhasa, Saudi Arabia

Clinical Laboratory Sciences Department, College of Applied Medical Sciences, King Saud bin Abdulaziz University for Health Sciences, Al-Ahsa, Saudi Arabia.
King Abdullah International Medical Research Centre, Al-Ahsa, Saudi Arabia

(PhD Scholar)Head of the Department of English
National College of Business Administration & Economics, Multan, Pakistan

Associate Professor, College of Applied Medical Sciences, King Saud bin Abdulaziz University for Health Sciences, Al-Ahsa, Saudi Arabia
King Abdullah International Medical Research Centre, Al-Ahsa, Saudi Arabia

Teaching Faculty English Language Department, College of Applied Medical Sciences, King Saud bin Abdulaziz University for Health Sciences, Al-Ahsa, Saudi Arabia
King Abdullah International Medical Research Centre, Al-Ahsa, Saudi Arabia

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Abstract

Background: Studying paediatrics' clinical linguistics can accurately assess the needs and demands of this field and can facilitate impactful and practical advancements in this domain.

Objectives: This research aims to identify the research goals of clinical linguistics in Pakistan, as limited studies have been conducted on this subject.

Materials and Methods: A comprehensive analysis was conducted on linguistic and speech therapy studies published till 2023 to ascertain the quantity and developmental trajectory of research conducted on clinical linguistics.

Findings: The field of linguistics has seen the highest number of research studies undertaken by speech therapists in phonetics/phonology (39%). In comparison, the lowest number of studies have been focused on pragmatics (24%). Linguistics has conducted limited research on diseases, accounting for just 0.4% of the studies. Some of these studies concentrate on aphasia, making up 19% of the research. Consequently, it is necessary to explore other illnesses as well.

<p>CC License CC-BY-NC-SA 4.0</p>	<p>Conclusions: There is a greater quantity of linguistic research focused on language and speech treatment compared to studies that utilize clinical data to investigate ideas and hypotheses. Hence, it is imperative to provide due consideration to this field and direct research efforts towards the hypotheses put forward in the associated illnesses. Hence, it is essential to consider the pragmatic and semantic aspects of the speech disorder, which are often overlooked.</p> <p>Keywords: Children, Clinical Linguistics, Research Significance, Paediatric, Speech Therapy</p>
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1. Background

Language and speech impairments involve a wide range of difficulties impacting an individual's ability to communicate proficiently. Language problems encompass challenges in understanding or conveying spoken or written language. These difficulties might arise in the form of problems related to vocabulary, syntax, sentence construction, or the arrangement of ideas. Children afflicted with language impairments may struggle to construct meaningful sentences or comprehend instructions, which can harm their scholastic achievements and social connections (Leonard, 2014). Speech problems, conversely, encompass challenges in the physiological articulation of sounds essential for verbal expression. These may include articulation abnormalities, characterized by difficulties pronouncing certain sounds or words, or fluency disorders, such as stuttering, which impede the seamless flow of speech (Bishop, 2014c). Language and speech impairments can manifest either during childhood as developmental disorders or later in life due to stress, sickness, or neurological issues.

The ramifications of these diseases transcend language, influencing an individual's social, emotional, and academic dimensions of life. Bishop (2014b) finds that effective communication is an essential element of human contact, and when impeded, it can result in feelings of frustration, loneliness, and diminished self-worth. Prompt intervention is crucial for resolving language and speech difficulties, frequently entailing speech treatment, educational assistance, and cooperation with parents and educators. Therapists strive to develop communication skills, expand vocabulary, and tackle individual-specific difficulties. Assistive technology is crucial in supplying tools and gadgets that aid communication for those with profound speech problems (Bishop, 2014a; Kormos & Smith, 2023). Through a holistic approach to managing language and speech impairments, individuals can acquire the necessary skills and self-assurance to negotiate the intricacies of social and academic communication effectively. This fosters an improved quality of life and facilitates greater involvement in society.

The first concept of clinical linguistics was given by David Crystal in 1981. Most researchers have referenced Crystal's definition of clinical linguistics and considered it the basis of their work (Ahadi, 2016; Crystal, 2013; Medina, 2018). However, Jing (2021) believed clinical linguistics is an expression rather than a field of study. He further described clinical linguistics as an application of linguistic theories, methods, and findings to describe, evaluate, and treat communication disabilities, as well as the application of clinical data to accept or reject linguistic theories, methods, and findings (Chaudhari et al.,

2022). Clinical linguistics mainly aims to classify patients' linguistic behaviours in differential diagnosis. Clinical linguistics has also evolved to devise a good assessment of abnormal linguistic behaviour (Bryant, Ferguson, & Spencer, 2016). The ultimate goal of clinical linguistics is to formulate hypotheses to treat abnormal language behaviours. These areas identify the scope of clinical linguistics (McCann, Plourde, Moore, & Purdy, 2021). The mentioned areas of clinical linguistic activities only cover one aspect of the definition (using linguistics in disorders); the other aspect of the studies is using clinical data to accept or reject linguistic hypotheses. For example, one of the reasons to study specific language impairment (SLI) in children is to gain insight into language organization and development. Studies on specific language impairment show that an impairment limited to the language alone supports a modularity hypothesis corresponding to big modularity (Crystal, 2018). As for the small modularity, the question arises about what components a language consists of. Grammar and pragmatics are distinct components, and if so, how are they? In this regard, grammatical and pragmatic data of children with specific language impairments are studied. (Snow, 2015). Thus, specific language impairment and other disorders such as autism, Williams syndrome, and the like can be beneficial in studying linguistic hypotheses. (Ahadi, 2016).

In Pakistan, no direct research has been conducted to examine the correlation between children's speech therapy disorder and linguistics, as well as the impact they have on the clinical linguistics domain. According to Brixtel, Lejeune, Doucet, and Lucas (2013), research on the disease in the field of linguistics is quite scarce. Nevertheless, research is carried out in each of these domains as part of students' theses. For instance, there was a lot of study on theses, together with their abstracts, in the subject of linguistics from many institutions. Many compilations were officially published in Pakistan's national digital library (G. Khan & Bhatti, 2016). Bashir and Khanum (2021) conducted research on 'Modern Linguistics in Pakistan,' which was comprised of a comprehensive inventory of linguistic books and articles arranged in alphabetical order in English. The findings of their investigation revealed that the documented activities in theoretical linguistics, including so many works, are nearly double the number of works in applied linguistics. Grammatical concerns, sociolinguistics, and dialectologies are placed first, second, and third based on the number of works. In addition, Urdu orthographic branches, glossaries and dictionaries, translations, computer linguistics, and speech pathology made the smallest contributions. In another research on clinical linguistics' modern trend in Pakistan Ali (2018) has written that in recent years, this field of research was a top trend concerning language and speech disorders in children, and most of the research was related to paediatrics.

Badar, Naz, Mumtaz, Babur, and Saqulain (2021) have completed their research after having a lot of theses focusing on assessment and barriers among Pakistani speech-language pathologists related to children's local needs and clinical experiences according to the Pakistani culture. Aphasia-diagnostic challenges and trends were based on speech-language pathologists' perspectives about general linguistics, and they also focused on literature in clinical linguistics for speech pathology and language disorder in teenagers. In addition, they referred to specific cognate disciplines like speech therapy, but not exhaustively. Concluding their research, they included a subject index, but the phrase "disorder" was absent, making locating the language studies pertaining to disorders

impossible. A single index was employed to assess linguistic disorder, referencing just one thesis. A particular index was used to evaluate the number of research in several language domains, including syntactic, semantic, phonetic/phonological, morphological, pragmatic, and lexical studies.

In another study related to speech therapy O'Leary, Brouder, Bessell, and Frizelle (2023) have gathered data and systematically arranged at rehabilitation institutions and colleges of Pakistan in the province of Punjab, but their classification was determined according to the courses, universities, educational level, rather than language areas. However, their results suggest that the development of these pivotal skills necessary for clinicians to develop therapeutic rapport and manage an evolving evidence base was not linguistically tackled in Pakistan's medical scenario for children's language speech therapy disorder. On the other side, this research study highlighted the importance of research significance of speech therapy in Pakistan but not on clinical linguistics as a top research trend. Maybe the main focus of the research was just speech and therapy about clinical practices but not the research significance and priorities about paediatric clinical linguistics on children.

Kiyani (2023) has conducted a comprehensive analysis to examine the nature and patterns of research in clinical linguistics, specifically focusing on Pakistan. The availability of technology and resources related to language and speech pathology that resulted from his research was scarcely found. His research focus was on prevailing practices and advancements of speech and language pathology in Pakistan concerning clinical linguistics, where he discussed the needs of this domain as a priority because he found speech therapy was a growing trend in Pakistan and around the world. The findings of his investigation revealed that the majority of the research focused on phonology and phonemics. Following these grammar, discourse, pragmatics, semantics, and sociolinguistics. Phonology and phonetics accounted for 67% of the study. A substantial body of research focused on patients' linguistic impairments. Subsequently, he categorized articles according to their respective illnesses. In his analysis, it was found that the predominant focus of the research was on aphasia, apraxia, dysarthria, hearing loss, stuttering, and cleft palate (Noor, Iqbal, & Rasheed, 2023).

Khaton, Zaidi, and Nasim (2019) have examined the needs of Pakistani students and their priorities of the needs of Pakistani students where the research question, such as speaking skills, have high importance for the students in a clinical setting. The study of linguistics has seen the most extensive research in phonology and phonetics, while the least amount of research has been conducted in the domains of semantics and sociology.

The research goals in clinical linguistics in Pakistan are influenced by the distinctive language environment of the nation, as well as the many linguistic obstacles encountered by its population. An essential area of study that requires immediate attention is investigating language problems and differences within multilingual environments. Pakistan harbours various languages, encompassing Urdu, Punjabi, Sindhi, Pashto, and others. Research should focus on comprehending the manifestation of language impairments across multiple languages and investigating evaluation and therapeutic options that are both culturally sensitive and linguistically suitable. Furthermore, examining the repercussions of bilingualism on language acquisition and communication difficulties in Pakistan is imperative. Given the prevalence of multilingualism, clinical

linguistics research must investigate the impact of bilingualism on language processing, acquisition, and any challenges that may occur. This will provide essential knowledge for improving therapeutic procedures.

S. G. Khan et al. (2021) call it an essential area of study that needs attention to detect and treat language impairments in various groups, especially those in disadvantaged and marginalized areas. Pakistan has a wide range of language variations, which coexist with significant socio-economic inequalities. Consequently, persons belonging to underprivileged communities may encounter extra obstacles while attempting to access healthcare and educational facilities. The objective of the research should be to create and apply screening techniques that are both affordable and culturally appropriate for the early detection of language abnormalities. Furthermore, it is necessary to customize treatments according to the particular language and cultural settings to guarantee their efficacy (Zikria, Mumtaz, Saqulain, & Naveed Babur, 2021). This research focus aligns with the overarching objective of fostering inclusion and tackling health inequalities in linguistically varied groups of Pakistan about trends in clinical linguistics for children with speech disorders and language problems. The involvement of researchers, clinicians, and community stakeholders is crucial for developing and implementing scientifically rigorous and culturally sensitive strategies. This will ensure that clinical linguistics research in Pakistan makes a meaningful contribution to enhancing the well-being of diverse linguistic communities.

2. Objectives

The author conducted this research to identify the research goals of clinical linguistics in Pakistan, as studies in a particular region might provide insights into the specific requirements and demands of that field.

3. Materials and Methods

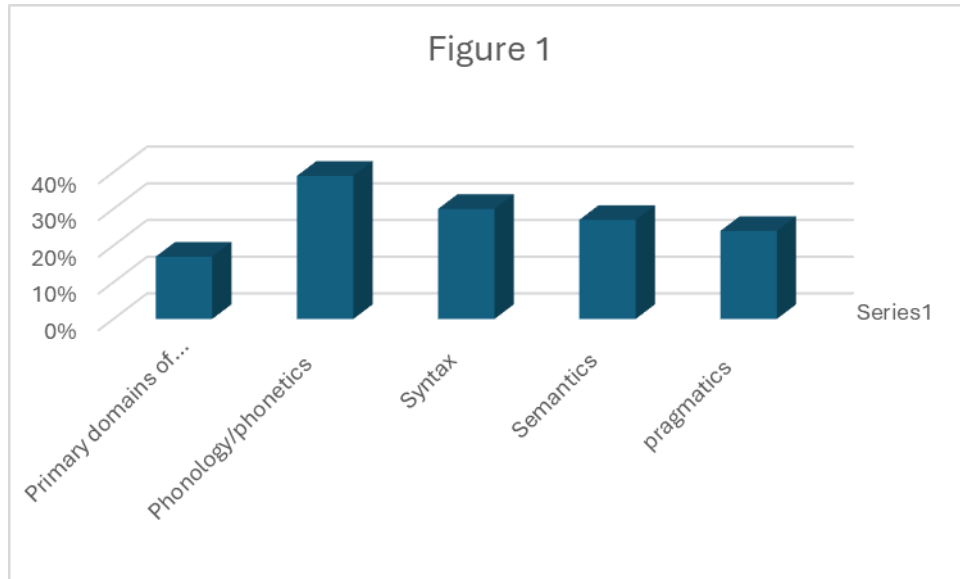
The data was collected from medical universities located in different cities in Pakistan. Subsequently, the surveys were categorized into four groups based on their respective fields: pragmatics, syntax, semantics, and phonetics/phonology. The research was centered on a particular condition. Any studies that pertained to broad themes like language development or studies that did not fall into any of these four categories were categorized into the fifth group. It is important to mention that there are other universities, like the Nishtar Medical University, where speech therapy is taught. However, some universities are not included here because they are newly established, and their students have not yet presented any theses.

Additionally, in some universities, such as the Victoria Medical University, Bahawalpur, at the undergraduate level, only a brief survey was conducted, which cannot be officially documented. There are 98 private and more than 200 government-funded universities in Pakistan, but medical-related institutions are less in number. The subsequent phase was an examination of linguistics studies conducted in Pakistan, specifically focusing on spanning from the inception of this academic discipline until 2023. Regarding this matter, the theses on diseases were acknowledged and categorized in a part of the survey. The compilation of titles published between 2010 and 2023 was obtained by utilizing abstract of language and linguistics theses. This research includes a comprehensive list of descriptions of

linguistic thesis surveys conducted in Pakistan since the inception of this field of study until 2023 (Rashid & Mahmood, 2019). The survey investigations also utilized the theses archived in the electronic library sites of Pakistani medical universities and colleges.

4.1 Results

In Figure 1, the data provided reveals that 17% focused on the primary domains of linguistics. Much of the research concentrated on phonology/phonetics (39%) and syntax (30%), while a smaller proportion were dedicated to semantics (27%) and pragmatics (24%).



According to the survey questionnaire in public linguistics in Pakistan, up to 2023, only 4% focused on the linguistic research of diseases, as per Figure 2. Within this subset, 6% were explicitly on the linguistic study of aphasia, 19% on the study of reading impairments, and another 17% on the study of language features in deaf children.

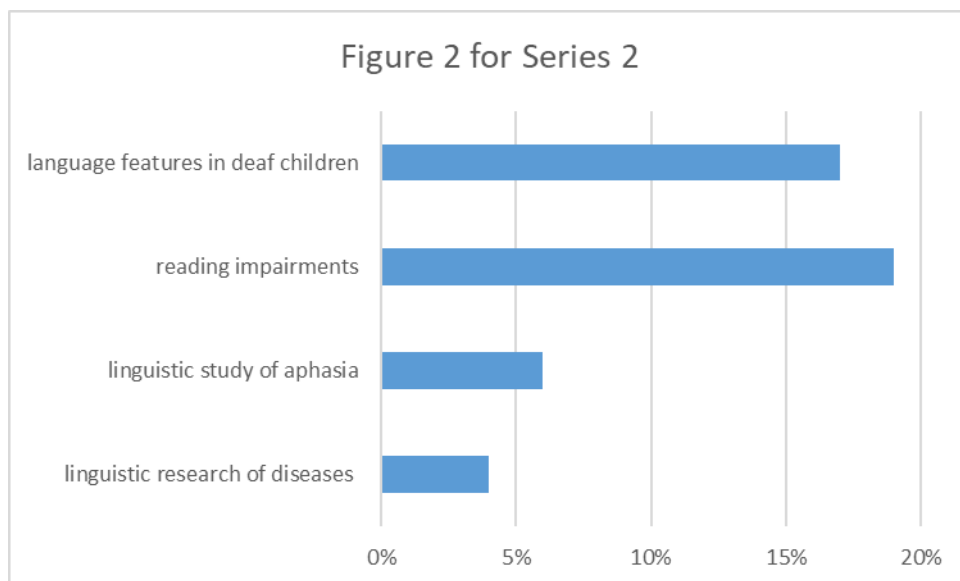
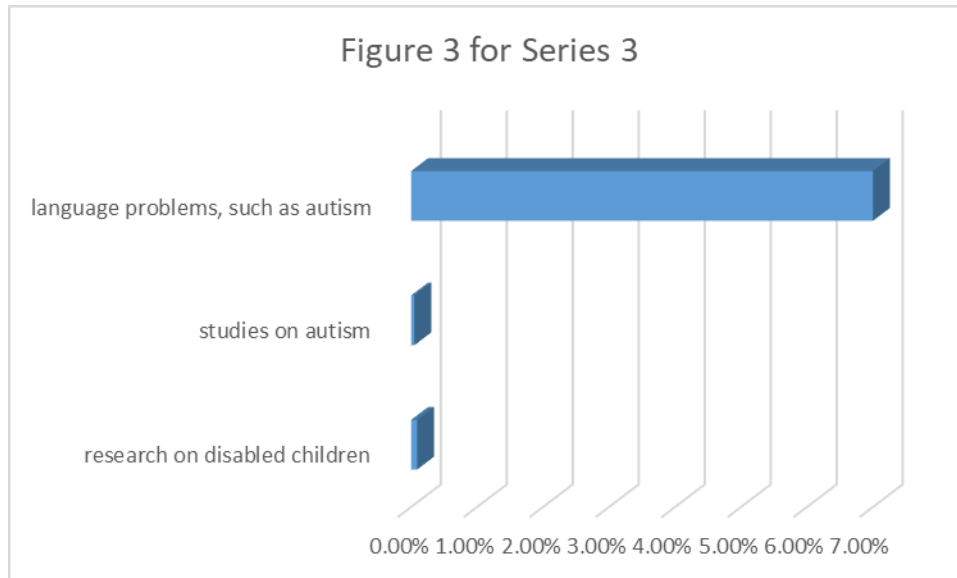


Figure 3 demonstrates that research on disabled children (0.09%) is the most prevalent, followed by studies on autism (0.05%). The inaugural language survey question in this domain was focused on aphasia. However, more questions have shifted their attention toward other language problems, such as autism, 7% of the course.



Speech therapists need to gather data on language and speech problems, but the linguists' interest in language and speech disorders is minimal, as most of their research focuses on normal language. This conclusion aligns with the outcomes of Razzaq and Khan (2023) study, which indicated that computer linguistics, language, and speech pathology had the least linguistic research conducted.

The findings indicate that most linguistic research focuses on issues associated with aphasia, while just a few studies investigate language difficulties in children with autism. Studies on reading and writing difficulties rank second in terms of importance. Crystal's research reveals that aphasia was the main focus of most international studies published in clinical language publications during the past 15 years (Bryant et al., 2016).

Research on linguistics indicates that aphasia was the initial field of research that garnered significant interest from linguists. Nevertheless, the earlier studies focused on broad topics like aphasia disorders, whereas the more recent studies have delved into utilizing linguistic theories in disorders. For instance, they have examined the various processes present in the speech of individuals with aphasia in Urdu using systemic functional linguistics. Recent investigations have expanded their scope beyond aphasia to include other illnesses, such as cleft palate and autism. A limited number of research have been undertaken on the linguistic characteristics of individuals with Parkinson's disease and Alzheimer's. The research demonstrates a convergence of linguistics and speech therapy, signifying the advancement of clinical linguistics (Cummings, 2008).

An analysis of the survey questionnaire in the domain of speech therapy reveals that the most and least extensive research has been carried out on phonology/phonemics and pragmatic problems, respectively. Following phonetics/phonology, syntax constituted

most of the research. The explanation for this may be attributed to the objectivity of phonology and the prevalence of problems in this domain since the rate of articulation disorders is significantly higher compared to other types of diseases. Conversely, phonology greatly interests specialists due to its correlation with reading and writing impairments. As a result, most phonological research focuses on phonological awareness and its association with reading disorders. The investigations primarily focused on phonology and phonetics (Ahadi, 2016).

The present study compared its results with other studies in the field of general linguistics (Key & Noble, 2017; Robins, 2014). It was found that most studies in general linguistics focused on syntax, while studies on phonology/phonetics ranked fourth in frequency. However, in the present study, the focus was primarily on phonology/phonetic disorders. This emphasis can be attributed to the significance of this area in disorders research or the high prevalence of individuals with phonological/phonetic disorders (Nogueira, Silva, & Cera, 2020). Comparing domestic and international research reveals a stark contrast in the prevalence of publications mentioning apraxia, dyslexia, and stuttering in clinical linguistic journals. While foreign nations have a plethora of such articles, the Pakistani linguistics environment has a scarcity of linguistics surveys addressing these illnesses. Furthermore, foreign studies often include several case reports that elucidate the particular linguistic limitations. However, the presence of survey research on clinical linguistics for children by paediatricians in this particular field is limited in Pakistan.

5.1. Conclusions

The present study demonstrates the necessity of exploring several research domains in the future. Conducting research in these areas has the potential to bring about effective and beneficial improvements in the field of clinical linguistics by Pakistani paediatricians. Given the crucial role that all language domains play in communication, any impairment to these domains might cause a severe problem. It is essential to additionally consider the pragmatic and semantic aspects of the disease, which are often overlooked in research investigations. Furthermore, while examining language issues, it is imperative to evaluate illnesses other than aphasia, including reading difficulties and hearing impairments. There is a greater quantity of linguistic research focused on language and speech therapy compared to studies centered around ideas and hypotheses. Hence, it is imperative to provide significant attention to this region and direct the investigations towards the given hypotheses and ideas regarding language problems.

6.1 Recommendations

Future research goals in Clinical Linguistics in Pakistan should be strategically focused on addressing the distinct language and healthcare difficulties encountered by the varied population of the nation. There is an urgent requirement for thorough research into the language expressions of different neurological illnesses common among Pakistanis (Javed & Ilyas, 2018). Studying the linguistic impairments linked to diseases like stroke, dementia, and traumatic brain injuries might greatly aid in the creation of culturally appropriate methods for diagnosing and treating these conditions. Furthermore, it is imperative to prioritize research that aims to comprehend the repercussions of linguistic variety on healthcare communication, considering Pakistan's multilingual environment (Munawar & Choudhry, 2021). An essential aspect of improving healthcare delivery is to

investigate the linguistic obstacles that impede efficient communication between doctors and patients, particularly in rural regions where several languages are spoken. In future work, studying particular aspects of linguistic obstacles may be useful.

Moreover, prioritizing the examination of the language dimensions of mental health issues within the Pakistani setting is essential. This involves analysing linguistic patterns linked to diseases such as depression, anxiety, and schizophrenia, as well as creating linguistic indicators for the early identification and tracking of these disorders (Jabbar et al., 2015). The cooperation of linguists, psychologists, and healthcare experts can enhance a comprehensive comprehension of the complex interaction between language and mental health. Furthermore, research endeavours must focus on creating and verifying assessment instruments that are suitable for linguistically and culturally diverse groups, as this study was limited to a few surveys but could be extended for the large scale of other methods. These tools will enable correct evaluation of language abilities, leading to precise diagnosis and effective intervention planning (Aqeel et al., 2022).

Research on language development in bilingual and multilingual environments is necessary in the field of education, particularly with regard to the influence of language policy on educational achievements (Rafique, Mahmood, Warraich, & Rehman, 2021). Furthermore, investigating the efficacy of language intervention programs at academic institutions, especially for children with language impairments, can help establish evidence-based methodologies (Razzaq & Khan, 2023). These future research goals in Clinical Linguistics have the potential to facilitate advancements in healthcare practices, improve educational results, and deepen our understanding of the complex connection between language and health in the Pakistani setting. Future advances are expected to result in excellent outcomes for children's clinical linguistics regarding language and speech disorder by the paediatrician doctors and Linguistics experts.

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