

Navigating Communication Barriers: Lived Experiences and Coping Strategies of Students with Cochlear Implants in Mainstream Classrooms in Punjab, Pakistan

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ABSTRACT

Background: Cochlear implantation can substantially improve access to spoken language and educational opportunities for students with severe-to-profound hearing loss; however, access to auditory information does not necessarily ensure full participation in mainstream classrooms. Background noise, multiple speakers, rapid communication, limited teacher awareness, and socially demanding interactions may continue to create communication barriers. In Pakistan, existing research has largely examined these challenges from teachers' perspectives, leaving students' own experiences comparatively underexplored.

Purpose: This study explored the lived experiences of students with cochlear implants in mainstream classrooms in Punjab, Pakistan, with particular attention to communication barriers, their perceived effects on classroom and peer participation, coping strategies, and forms of support perceived as helpful.

Method: A qualitative phenomenological design was employed. Using purposive sampling, 13 students with cochlear implants who had experience of mainstream education were recruited through the Special Education Department and cochlear implant centers in Punjab. Data were collected through semi-structured interviews and analyzed using reflexive thematic analysis. The study was informed by the Social Model of Disability and the International Classification of Functioning, Disability and Health (ICF), which enabled communication difficulties to be interpreted in relation to both individual needs and environmental conditions.

Findings: The findings indicated that students experienced communication difficulties particularly in noisy classrooms, during group discussions, when multiple people spoke simultaneously, and when teachers communicated without sufficient visual or positional support. These barriers were perceived to affect students' ability to follow classroom discussions, contribute to activities, and participate

comfortably in peer interactions. Students described using a range of coping and self-advocacy strategies, including requesting repetition, positioning themselves closer to speakers, relying on visual cues, and seeking assistance from teachers or peers. Supportive teacher practices, responsive peers, accessible communication, and appropriate classroom arrangements were perceived as important facilitators of participation.

Conclusion: *The findings suggest that cochlear implantation alone does not guarantee communicatively accessible or fully inclusive mainstream education. Meaningful inclusion requires attention to the interaction between students' communication needs and classroom environments, together with responsive teacher practices and supportive peer relationships. By centering the voices of students with cochlear implants, this study contributes context-specific qualitative evidence from Pakistan and highlights the need for inclusive classroom practices that address participation as well as auditory access.*

Keywords: *cochlear implants; mainstream education; communication barriers; student experiences; coping strategies; classroom participation; inclusive education*

INTRODUCTION

Cochlear implantation has substantially changed the educational possibilities for children with severe-to-profound hearing loss by improving access to auditory information and spoken communication. However, the presence of a cochlear implant should not be equated with unrestricted participation in everyday educational environments. Research increasingly demonstrates that children with cochlear implants may perform well in mainstream settings while still experiencing difficulties that are less visible in conventional measures of hearing, speech, or academic achievement (Punch & Hyde, 2011). These difficulties become particularly important when communication depends on rapid speech processing, multiple speakers, distance from the speaker, or background noise (Krijger et al., 2020).

Mainstream classrooms present complex listening environments in which students are required not only to hear the teacher but also to follow peer discussions, group activities, classroom instructions, and spontaneous interactions. Choi et al. (2020), for example, found that although many children with cochlear implants experienced little difficulty communicating in quiet settings, a substantial proportion reported difficulties understanding classroom content and communicating with peers in noisy classrooms. Similarly, Lee et al. (2022) found that adolescents with bilateral cochlear implants generally adjusted to mainstream schools, yet continued to experience difficulties in communication and peer relationships. Importantly, these findings challenge the assumption that successful auditory rehabilitation automatically produces successful educational inclusion. Umat et al. (2018) reported differences between teachers' and parents' perceptions of the school readiness of children with cochlear implants, particularly in academic, communication, and language-related domains. Such discrepancies suggest that students' educational experiences cannot be adequately understood through clinical indicators or adult assessments alone; the everyday realities of learners themselves require direct investigation.

The communication difficulties experienced by students with cochlear implants are also shaped by environmental and social conditions rather than by hearing ability alone. Recent qualitative evidence indicates that children may experience participation restrictions because of background noise, conversational demands, environmental conditions, and social barriers, even when parents perceive their overall communication outcomes as positive (Duchesne et al., 2025). Likewise, qualitative research involving professionals has emphasized that effective communication support requires attention to technology, communication practices, instructional arrangements, and collaboration among educational and clinical personnel (Okladou et al., 2018). Another important dimension concerns how students

themselves respond to these barriers. Rather than being passive recipients of support, students with cochlear implants may develop compensatory and self-directed strategies, such as positioning themselves strategically, requesting repetition, relying on visual information, seeking assistance from peers or teachers, and modifying their participation in difficult communicative situations. Evidence from mainstream schools in Kerala demonstrates the relevance of compensatory strategies for children with cochlear implants, while also emphasizing the need for teachers to understand and accommodate students' individual communication needs (George et al., 2021).

The Pakistani context presents a particularly important but comparatively underexplored setting for this inquiry. A qualitative Pakistani study by Ershad and Noreen (2020) investigated the problems associated with cochlear-implanted students in mainstream classes; however, its participants were seven primary school teachers, meaning that the experiences of the students themselves were not the central source of evidence. The study identified teacher awareness, training, and differentiated instruction as important issues, but this teacher-centered perspective leaves unanswered how students actually experience communication barriers and how they personally navigate them within mainstream classrooms. This gap is significant because communication barriers are inherently experiential and context-dependent. A teacher may observe that a student appears attentive and academically capable, while the student may simultaneously be missing portions of classroom discussion, struggling to follow several speakers, avoiding peer interaction, or developing personal strategies to compensate for missed information. International qualitative research has similarly shown that apparently positive communication outcomes can coexist with subtle but meaningful restrictions in participation, indicating the importance of examining communication from the learner's perspective rather than relying exclusively on parents, teachers, or clinical measures (Duchesne et al., 2025).

Therefore, the present study seeks to explore how students with cochlear implants experience and navigate communication barriers in Pakistani mainstream classrooms. Rather than treating communication difficulty solely as an impairment located within the student, the study considers the interaction between the learner, classroom environment, teachers, peers, and available support. Through students' lived accounts, the study aims to identify the barriers they encounter, examine how these barriers influence classroom participation and peer interaction, explore the coping strategies they develop, and understand what forms of support they perceive as meaningful. In doing so, the study responds to an important contextual and methodological gap by placing the voices and agency of students with cochlear implants at the centre of research on inclusive education in Pakistan.

Statement of the Problem

Cochlear implantation has improved the educational opportunities of students with severe-to-profound hearing loss; however, access to a cochlear implant does not necessarily ensure effective communication in mainstream classrooms. Research indicates that students with cochlear implants may still experience difficulties understanding classroom content and communicating with peers, particularly in noisy environments. These difficulties may become more pronounced during group work, large-classroom activities, and situations involving multiple speakers (Iglehart, 2016; Blumenthal & Sefotho, 2022). The problem is not limited to hearing access but also concerns students' participation and everyday classroom experiences. Evidence suggests that students with cochlear implants may require greater cognitive effort to follow spoken information, which can contribute to reduced concentration and fatigue (Blumenthal & Sefotho, 2022). At the same time, teachers may not always recognize the extent of students' listening difficulties, creating a possible gap between students' actual experiences and how their classroom participation is perceived by others.

In Pakistan, research on this issue remains limited. Ershad and Noreen (2020) examined challenges faced by cochlear-implemented students in mainstream classrooms through the perspectives of seven primary school teachers and highlighted the importance of teacher awareness, training, and differentiated instruction. However, the study did not directly explore the students' own experiences of communication barriers, their effects on classroom and peer participation, or the strategies students used to manage these difficulties. Thus, a significant gap remains in understanding the lived experiences of students with cochlear implants in Pakistani mainstream classrooms. In particular, limited attention has been given to students' own perspectives regarding communication barriers, their impact on participation and peer interaction, coping strategies, and the support they perceive as useful. Addressing this gap through a qualitative, student-centered inquiry can provide a deeper understanding of the challenges experienced by these students and contribute contextually relevant evidence for more inclusive mainstream classroom practices.

Objectives of the Study

The study aimed to explore the lived experiences of students with cochlear implants studying in Pakistani mainstream classrooms. Specifically, the study aimed to:

1. Explore the communication barriers experienced by students with cochlear implants in Pakistani mainstream classrooms.
2. Examine students' perceptions of the impact of communication barriers on their classroom participation and peer interaction.
3. Identify the strategies used by students with cochlear implants to manage communication difficulties in mainstream classrooms.
4. Explore the forms of support that students perceived as helpful in overcoming communication barriers in mainstream classrooms.

Research Questions

The study addressed the following research questions:

1. What communication barriers did students with cochlear implants experience in Pakistani mainstream classrooms?
2. How did students with cochlear implants perceive the impact of these communication barriers on their classroom participation and peer interaction?
3. What strategies did students with cochlear implants use to manage communication difficulties in mainstream classrooms?
4. What forms of support did students with cochlear implants perceive as helpful in overcoming communication barriers in mainstream classrooms?

Theoretical Framework

The present study was guided by the Social Model of Disability and supported by the International Classification of Functioning, Disability and Health (ICF). These perspectives were appropriate because

the study focused on communication barriers experienced by students with cochlear implants within mainstream classrooms rather than viewing communication difficulties solely as a consequence of hearing loss. The Social Model of Disability emphasizes that disability is influenced not only by an individual's impairment but also by barriers created by the surrounding social and physical environment (Shakespeare, 2013). In the context of this study, students with cochlear implants may have improved auditory access through their devices, yet they may still experience difficulties because of background noise, poor classroom acoustics, multiple speakers, rapid communication, or limited awareness among teachers and peers. Thus, communication difficulties were understood as an interaction between students' communication needs and the classroom environment.

The study was also informed by the ICF framework, which views functioning and participation as the result of interactions between individual and environmental factors (World Health Organization [WHO], 2001). This perspective was useful for examining how classroom conditions and available support influenced students' participation. For example, teacher support, peer assistance, assistive technology, and appropriate classroom arrangements could facilitate communication, whereas environmental barriers could restrict participation. The framework also recognized students as active participants who developed strategies to manage communication difficulties. Such strategies could include requesting repetition, positioning themselves closer to speakers, using visual cues, seeking peer assistance, and self-advocacy. Recent qualitative research has shown that students with hearing loss actively use different coping strategies, although coping does not necessarily remove the barriers they experience (Eichengreen et al., 2026). Thus, the theoretical framework connected four key dimensions of the study: communication barriers, participation and peer interaction, coping strategies, and perceived support. It enabled the study to examine students' experiences within their actual classroom environment and to understand communication difficulties as a result of the interaction between individual needs and environmental conditions.

LITERATURE REVIEW

Cochlear Implantation and Mainstream Education

Cochlear implantation has expanded educational opportunities for children with severe-to-profound hearing loss by improving access to auditory information and spoken communication. Longitudinal evidence indicates that children receiving cochlear implants can achieve substantial auditory, language, academic, and functional gains, particularly following early intervention (Ching et al., 2018). Similarly, adolescents with cochlear implants have demonstrated positive educational and quality-of-life outcomes, although considerable individual variation remains (Cejas et al., 2023). These findings establish the educational benefits of cochlear implantation but also raise an important question: does improved auditory access necessarily result in equal classroom participation? Academic achievement and participation are related but distinct dimensions of educational inclusion.

Mainstream placement does not necessarily eliminate communication difficulties. Fitzpatrick and Olds (2015) reported improvements in hearing, communication, academic functioning, and social development following cochlear implantation, while practitioners continued to identify difficulties in classroom participation and peer interaction. Likewise, adolescents with cochlear implants have reported communication difficulties when several people speak simultaneously (Wiefferink et al., 2013). Therefore, academic success should not automatically be interpreted as evidence of unrestricted communication. A student may perform well academically while still experiencing difficulties during group activities, spontaneous discussions, and informal interactions. Existing research has also frequently emphasized academic achievement, speech perception, and adult assessments when evaluating educational outcomes. Convertino et al. (2014) found that cochlear implantation can facilitate access to

linguistic and world knowledge, but differences may remain because deaf learners do not always have equivalent access to incidental information. This suggests that educational inclusion should be examined through access, participation, and interaction, rather than academic outcomes alone.

Communication Barriers in Mainstream Classrooms

Mainstream classrooms present substantially more complex listening conditions than controlled clinical environments. Students must follow teachers who may move around the classroom, distinguish speech from background noise, understand multiple speakers, and shift attention between auditory and visual information. Iglehart (2016) demonstrated that classroom acoustics, including reverberation and speech-to-noise ratio, can influence speech perception among children with cochlear implants. Thus, adequate performance in quiet conditions does not necessarily indicate effective communication in real classrooms. Communication barriers are consequently shaped not only by the student's auditory ability but also by the physical classroom environment. Group communication is particularly demanding because students must identify speakers, follow rapid conversational turns, and process information without predictable speaker positioning. Wiefferink et al. (2013) reported communication difficulties among adolescents with cochlear implants when several people were speaking, while Jepsen and Liebst (2021) found that noisy and socially complex environments could interfere with face-to-face interaction among cochlear implant users. These findings challenge the assumption that adequate speech perception automatically ensures effective communication. Instead, communication depends on the interaction between students' abilities and the social and environmental demands of particular situations.

Communication difficulties may also involve considerable listening effort that remains invisible to teachers. Brännström et al. (2022) found that background noise and degraded speech increased perceived listening effort among children with hearing loss, including cochlear implant users. Students may therefore need to devote substantial cognitive resources simply to understanding spoken information while simultaneously taking notes, following instructions, and participating in activities. This suggests that observable classroom behavior may underestimate the actual effort required for successful communication and reinforces the value of investigating students' own experiences.

Classroom Participation and Peer Interaction

Communication barriers affect more than access to academic information because classroom participation is inherently interactive. Students are expected to ask questions, respond to teachers, contribute to group activities, and communicate with classmates. Research indicates that children and adolescents with cochlear implants can experience difficulties in group communication and social participation despite generally positive outcomes following implantation (Punch & Hyde, 2011). Therefore, physical presence in a mainstream classroom should not automatically be regarded as meaningful inclusion. Meaningful inclusion requires students to participate actively in classroom communication. Peer interaction presents additional challenges because informal conversations are less structured than teacher-led activities. Although many adolescents with cochlear implants demonstrate positive psychosocial adjustment, individual experiences vary considerably (Warner-Czyz et al., 2011). Difficulties may become more apparent during spontaneous conversations involving several peers, particularly in noisy environments. Jepsen and Pedersen (2025) further showed that young cochlear implant users may experience interactional and emotional difficulties in everyday communication. This shifts attention from simply asking whether students **can communicate** to examining when and under what conditions communication becomes difficult.

Coping Strategies and Student Agency

Students with cochlear implants actively develop strategies to manage communication barriers rather than experiencing them passively. Such strategies may include requesting repetition, moving closer to speakers, watching faces, using visual information, seeking assistance from peers, and withdrawing from particularly difficult situations. George et al. (2021) identified compensatory strategies among children with cochlear implants in mainstream schools, demonstrating students' active adaptation to their communication environments. However, adult observations may not fully explain why students select particular strategies or whether they consider them successful. Recent research has increasingly emphasized students' own perspectives on coping. Eichengreen et al. (2026) found that mainstreamed deaf and hard-of-hearing students used self-advocacy, peer support, acceptance of missed information, and emotional withdrawal to manage communication barriers. Importantly, coping did not necessarily produce social inclusion. This challenges an individualistic view in which students are expected to overcome communication difficulties through personal adaptation. Instead, coping is influenced by peers, classroom practices, environmental conditions, and the control students have over communication situations.

Coping should also be considered alongside listening effort and emotional consequences. Difficult listening conditions can increase cognitive effort (Brännström et al., 2022), while challenging face-to-face interactions may generate emotional strain and withdrawal (Jepsen & Pedersen, 2025). Therefore, a student's ability to cope should not automatically be interpreted as evidence that a barrier has been overcome. Frequent requests for repetition or withdrawal from group conversations may instead indicate continuing accessibility problems. Understanding these strategies through students' own accounts is therefore particularly important for qualitative research (Parveen et al., 2023).

Support and Inclusive Classroom Practices

The availability of appropriate classroom support can influence students' communication and participation. Assistive listening technologies may improve access to speech, particularly in noisy environments, but technology alone cannot ensure meaningful inclusion. Its effectiveness depends on consistent use, appropriate classroom practices, and teacher awareness. Iglehart (2016) demonstrated the importance of classroom acoustic conditions, suggesting that environmental modifications are as important as the student's hearing technology. Support should therefore be understood as a combination of technological, pedagogical, and environmental measures. Teacher perceptions may not always correspond with students' experiences. Krijger et al. (2020) reported differences between teachers' perceptions of listening difficulties and the difficulties experienced by students with cochlear implants. This suggests that teacher observation alone may underestimate challenges occurring during complex classroom communication. A student may appear attentive and academically successful while still missing parts of discussions or experiencing substantial listening effort. Student voice is therefore essential when determining whether classroom support adequately addresses communication needs.

Research Gap

Research concerning cochlear implant users in Pakistan remains limited, particularly regarding their experiences in mainstream educational settings. The most directly relevant Pakistani qualitative study examined challenges faced by cochlear-implanted students through interviews with seven primary school teachers. Ershad and Noreen (2020) identified teacher awareness, training, and differentiated instruction as important concerns. However, because the participants were teachers, the study did not directly capture students' experiences of communication barriers, classroom participation, peer interaction, coping, or support. This creates an important student-centered gap in Pakistani research. International qualitative

research further demonstrates the value of obtaining students' own perspectives. Hardebeck et al. (2026) found that students with hearing loss identified background noise, rapid speech, inconsistent assistive-technology use, and limited awareness as important barriers to mainstream participation. Students also described self-advocacy and behavioral adaptations for managing these difficulties. Such findings demonstrate that students can identify barriers and solutions that may remain invisible in teacher- or parent-centered research. The research gap therefore concerns not simply the limited number of cochlear implant studies, but whose experiences are represented and how communication barriers are understood. Existing Pakistani evidence provides an important teacher-centered perspective, whereas international research increasingly recognizes students as active participants who interpret and negotiate communication difficulties. The absence of student-centered qualitative evidence from Pakistani mainstream classrooms limits understanding of how CI students experience communication barriers and how these barriers influence their participation and relationships.

METHODOLOGY

Research Design

The study employed a qualitative phenomenological research design to explore the lived experiences of students with cochlear implants in Pakistani mainstream classrooms. A phenomenological approach was appropriate because the study sought to understand how participants experienced and interpreted communication barriers, classroom participation, peer interaction, coping strategies, and available support in their everyday educational environments (Creswell & Poth, 2018). The qualitative design also enabled participants to describe experiences that may not be adequately captured through standardized measures or quantitative indicators.

Population and Participants

The study population comprised students with cochlear implants who were enrolled in mainstream educational institutions in Pakistan. The participants were selected because they had direct experience of studying alongside hearing peers and could provide first-hand accounts of communication within mainstream classrooms. Previous Pakistani research on cochlear-implanted students has largely examined the perspectives of teachers, highlighting the need for research that gives greater attention to students' own experiences (Ershad & Noreen, 2020). A total of 13 students participated in the study. The sample size was determined through the principle of data saturation. Interviews continued until subsequent interviews produced no substantially new information relevant to the study objectives. Empirical research suggests that saturation can commonly be reached within approximately 9–17 interviews in relatively focused and homogeneous qualitative studies (Hennink & Kaiser, 2022).

Sampling Technique and Inclusion Criteria

Purposive sampling was used to recruit participants who had direct and relevant experience of the phenomenon under investigation. This approach was appropriate because the study sought rich, experience-based accounts from students with cochlear implants who had experience of participating in mainstream classrooms, rather than a statistically representative sample. Participants were identified and recruited through the Special Education Department and cochlear implant centers in Punjab, Pakistan. Relevant personnel at these settings assisted in identifying potentially eligible students who met the study criteria and had experience of attending mainstream educational institutions. Information about the study was then provided to eligible students and their parents/guardians, and participation was voluntary. Informed consent was obtained from participants, with parental/guardian consent obtained where required because of participants' age.

Participants were included if they:

1. had a diagnosed hearing loss and used a cochlear implant;
2. were currently enrolled in a mainstream educational institution in Pakistan;
3. had studied in a mainstream classroom alongside hearing peers;
4. had sufficient experience of classroom and peer communication to describe their experiences;
5. were willing to participate in a semi-structured interview; and
6. provided informed consent, with parental/guardian consent obtained where required because of participants' age.

Participant Profile

The demographic characteristics of the participants are presented in Table 1. Participants were assigned codes (P1–P13) to maintain confidentiality.

Table 1: Demographic Characteristics of the Participants

Participant	Age	Gender	Educational Level	Duration of CI Use	Mainstreaming Experience
P1	14	Male	Grade 8	7 years	6 years
P2	15	Female	Grade 9	8 years	7 years
P3	13	Male	Grade 7	6 years	5 years
P4	16	Female	Grade 10	10 years	8 years
P5	12	Male	Grade 6	5 years	4 years
P6	15	Male	Grade 9	9 years	7 years
P7	14	Female	Grade 8	7 years	6 years
P8	17	Male	Grade 11	11 years	9 years
P9	13	Female	Grade 7	6 years	5 years
P10	16	Male	Grade 10	9 years	8 years
P11	12	Female	Grade 6	5 years	4 years
P12	15	Male	Grade 9	8 years	6 years
P13	14	Female	Grade 8	7 years	6 years

Note. CI = cochlear implant.

Interview Guide

Data were collected through semi-structured interviews using an interview guide developed from the research objectives and questions. The guide consisted of open-ended questions covering four principal areas: communication barriers, the effects of these barriers on classroom participation and peer interaction, strategies used to manage communication difficulties, and perceived sources of support. Probing questions were used where necessary to encourage participants to elaborate on significant experiences. Semi-structured interviewing allowed consistency across participants while preserving flexibility for participants to introduce experiences that were not anticipated by the researcher (Creswell & Poth, 2018).

Data Collection Procedure

Semi-structured interviews were conducted with 13 participants. Each interview lasted approximately 30–40 minutes. Interviews were conducted individually to provide participants with an appropriate environment for discussing their experiences openly. With participants' consent, the interviews were audio-recorded and subsequently transcribed verbatim for analysis. Data collection continued until the 13th interview, at which point saturation was achieved and further interviews were considered unlikely to generate substantially new information. The use of saturation as an indicator of sample adequacy is supported by empirical qualitative research, particularly where the study population and research questions are relatively focused (Hennink & Kaiser, 2022).

Data Analysis

The interview transcripts were analyzed using thematic analysis. The analysis involved familiarization with the transcripts, generation of initial codes, development and review of candidate themes, refinement of themes, and interpretation of the final thematic structure. The analysis was conducted iteratively, allowing patterns across participants' accounts to be compared and interpreted in relation to the research questions. Reflexive thematic analysis was selected because it provides a flexible approach for identifying and interpreting patterns of meaning within qualitative datasets (Braun & Clarke, 2021). The analysis focused on four broad areas corresponding to the study objectives: communication barriers experienced by students, perceived effects on classroom and peer participation, coping strategies, and forms of support perceived as helpful. However, coding remained open to unexpected issues emerging from participants' accounts rather than being restricted to predetermined categories. This approach allowed the findings to reflect both the research questions and the participants' lived experiences.

Trustworthiness

The trustworthiness of the study was established through the four criteria proposed by Lincoln and Guba (1985): credibility, transferability, dependability, and confirmability. Credibility was enhanced through repeated engagement with the interview transcripts and careful comparison of emerging themes across participants. Transferability was addressed by providing detailed descriptions of the participants, research setting, sampling criteria, and data collection procedures. Dependability was supported by maintaining a clear record of the research and analytical procedures, while confirmability was strengthened by ensuring that interpretations were grounded in participants' accounts and by maintaining reflexive notes throughout the analysis. These procedures helped ensure the rigor and transparency of the qualitative inquiry (Lincoln & Guba, 1985).

Ethical Considerations

Ethical principles were maintained throughout the study. Participants were informed about the purpose and voluntary nature of the research and their right to withdraw without consequences. Confidentiality was maintained through participant codes rather than names, and identifying information was excluded from the analysis and reporting. For participants below 18 years of age, parental or guardian consent and participant assent were obtained. Audio recordings and transcripts were handled confidentially and used solely for research purposes.

Limitations of the Study

The study had several limitations. First, the participants were recruited from mainstream educational settings in Punjab, Pakistan; therefore, the findings reflected the experiences of students within this

particular geographical and educational context and could not be assumed to represent students with cochlear implants across all provinces of Pakistan. Second, the relatively small sample of 13 participants was appropriate for the phenomenological design and was based on saturation, but it limited the breadth of experiences that could be represented. Third, the study relied on participants' self-reported experiences, which may have been influenced by memory, personal interpretation, or willingness to disclose particular experiences. Finally, because the study focused specifically on students' perspectives, it did not include the parallel perspectives of teachers, parents, or peers. Future research could therefore employ a multi-perspective design involving students, teachers, parents, and peers across different provinces of Pakistan.

RESULT AND DISCUSSION

The interview data were analyzed using reflexive thematic analysis following Braun and Clarke (2021). Five major themes emerged from the participants' accounts: communication barriers within mainstream classrooms, effects of communication barriers on classroom and peer participation, coping strategies and self-advocacy, supportive classroom practices, and inclusion as a negotiated experience. Each theme was examined in relation to the participants' lived experiences and subsequently compared critically with existing literature.

Theme 1: Communication Barriers within Mainstream Classrooms

The first theme highlighted communication barriers experienced by students with cochlear implants during routine classroom activities. Participants reported that communication was easier in quiet, one-to-one interactions but became more challenging with background noise, multiple speakers, rapid speech, physical distance, or when teachers spoke while facing the board. Students also found it difficult to listen, take notes, and follow classroom discussions simultaneously. These findings indicate that communication challenges extended beyond hearing speech to processing and understanding information in dynamic classroom contexts. Although cochlear implants supported access to spoken communication, they did not eliminate the contextual demands of spontaneous interaction in mainstream classrooms.

P6 described the difficulty of listening while classroom noise was present:

“When the teacher is speaking and other students are talking at the same time, I cannot understand everything. Sometimes I look at the teacher, but when I look down to write, I miss what she says. Then I have to ask someone what was said.”

P2 stated more directly, “The biggest problem is noise. When the class is noisy, I cannot understand properly.”

P5 explained:

“I can understand my teacher when the class is quiet, but when students start talking, I miss many words. Sometimes I understand the beginning but then I lose the rest of the explanation.”

P10 highlighted the importance of teacher positioning:

“Sometimes the teacher walks around the classroom while explaining. When she is far away or her back is towards me, I cannot understand everything. I try to watch her, but I still miss some information.”

The difficulty with multiple speakers was emphasized by P13: “When two or three students talk together, I cannot separate their voices. I just wait until they stop.”

The participants' experiences were consistent with previous research demonstrating the influence of classroom acoustic conditions on students with cochlear implants. Iglehart (2016) found that classroom reverberation and speech-to-noise conditions influenced speech perception among children with cochlear implants. Similarly, Brännström et al. (2022) demonstrated that degraded listening conditions could increase perceived listening effort among children with hearing loss. Wiefferink et al. (2013) also reported greater communication difficulties when adolescents with cochlear implants were required to follow conversations involving multiple speakers. However, the present findings extend this literature by emphasizing that communication barriers were contextual rather than exclusively impairment-based. Participants were often able to communicate successfully under favorable conditions but experienced substantial difficulty when environmental demands increased. This supports the argument that successful cochlear implantation should not be equated with unrestricted communication access. Rather, effective communication depends on the interaction between the student's auditory capabilities and the physical and social characteristics of the classroom.

Theme 2: Communication Barriers and Restricted Participation

The second theme showed that communication difficulties influenced students' participation in classroom learning and peer interaction. Participants described hesitation in answering questions, joining discussions, and engaging in group activities, even when they knew the required information. Thus, silence did not necessarily reflect limited knowledge or motivation but could result from uncertainty about what had been heard or understood. Group activities and informal peer conversations were particularly challenging because they involved multiple speakers and unpredictable turn-taking. Familiar peers were generally easier to understand, whereas larger groups increased communication difficulties. Overall, communication barriers affected not only access to information but also students' active participation in mainstream classrooms.

P9 explained:

“Sometimes I know the answer, but I do not raise my hand because I am not sure what the teacher asked. If I answer something different, everyone will look at me. So I usually wait for another student to answer first.”

P4 stated, “When everyone talks together, I just stop talking because I cannot follow the conversation.”

P3 explained:

“Sometimes I understand the lesson, but I do not participate because I am afraid that I missed something. I prefer to listen instead of speaking because then nobody notices if I did not hear correctly.”

Regarding peer interaction, P11 stated, “With my close friends it is easy because they know how I communicate. With a big group, I miss many things.”

P8 described the social difficulty in greater detail:

“When my friends are talking one by one, I can understand them. But when they are excited and everyone starts talking, I cannot follow. Sometimes I just smile because I don't know what they are talking about.”

The findings are consistent with Punch and Hyde (2011), who reported that young people with cochlear implants could experience social communication difficulties despite generally positive educational outcomes. Warner-Czyz et al. (2011) similarly demonstrated considerable variation in the psychosocial

experiences of adolescents with cochlear implants. More recent research has also identified communication conditions, classroom noise, and rapid interaction as important factors affecting participation among students with hearing loss (Todorov et al., 2022). The present findings, however, provide a more nuanced interpretation by demonstrating that communication barriers could influence participation indirectly through uncertainty and self-withdrawal. A student might understand the academic content but remain silent because of fear of misunderstanding. Therefore, conventional indicators such as attendance, assignment completion, and academic achievement may not adequately represent communicative participation. The findings suggest that meaningful inclusion should also consider students' opportunities to ask questions, contribute to discussions, and participate in informal peer interaction.

Theme 3: Coping Strategies and Self-Advocacy

The third theme focused on the strategy's participants developed to manage communication difficulties. Students demonstrated considerable agency in adapting to classroom demands. Common strategies included sitting near the teacher, watching the speaker's face, requesting repetition, asking classmates for clarification, using written information, and informing teachers about their communication needs. However, the findings also demonstrated differences in students' willingness to advocate for themselves. Some participants openly communicated their needs, while others preferred to compensate silently. This difference appeared to be influenced by embarrassment, fear of interrupting teachers, or concerns about attracting attention to their hearing difficulties. Coping therefore represented both an adaptive resource and a potential burden. While strategies enabled students to obtain information and continue participating, they also required students to take responsibility for overcoming communication barriers. This was particularly evident when students repeatedly relied on classmates or avoided asking teachers to repeat information.

P1 explained:

"I always sit in the first row because I can hear the teacher better and I can see her face. If I sit at the back, sometimes I don't understand, especially when the teacher is speaking softly."

P7 stated, "If I miss something, I ask my friend quietly. She tells me what the teacher said."

P6 explained, "I watch the teacher's face. If I cannot see her face, it becomes difficult for me to understand."

P12 described developing greater self-advocacy:

"At first I was shy to tell teachers that I could not hear properly. Now I tell them to repeat or speak a little slowly. Some teachers understand, but sometimes I still feel uncomfortable asking again."

In contrast, P10 explained:

"Sometimes I don't ask anyone. If I miss something, I just look at my friend's notebook or try to understand from what is written on the board. I don't want to interrupt the teacher again and again."

The use of compensatory strategies is consistent with George et al. (2021), who identified different strategies used by children with cochlear implants to manage communication demands in mainstream educational environments. Todorov et al. (2022) similarly highlighted self-advocacy and student strategies as important facilitators of classroom participation. These findings support the interpretation

that students with cochlear implants are active participants who develop ways of negotiating communication barriers. Nevertheless, the present findings demonstrate that coping should not be interpreted as evidence that communication barriers have been resolved. Brännström et al. (2022) demonstrated that difficult listening conditions can increase listening effort among children with hearing loss. Therefore, continually monitoring speakers, requesting repetition, or reconstructing missed information may place additional cognitive demands on students. The findings consequently support a distinction between student resilience and environmental accessibility. Students' ability to cope is valuable, but it should not substitute for appropriate classroom accommodations.

Theme 4: Supportive and Responsive Classroom Practices

The fourth theme concerned the forms of support that participants perceived as useful. Participants emphasized that effective support often involved simple but consistent classroom practices. These included teachers facing students while speaking, speaking clearly, repeating important information, reducing unnecessary classroom noise, allowing sufficient time for responses, and checking students' understanding.

Peer support was also an important component of participants' experiences. Friends who repeated information, explained missed instructions, and included students in conversations helped participants remain engaged. However, support varied between teachers and classrooms. Some teachers were highly responsive to students' needs, whereas others appeared unaware that communication had been missed. This inconsistency was significant because participants did not simply require support to exist; they required it to be predictable and responsive. Inconsistent support could result in students being uncertain about whether they would be able to follow a lesson or participate in a particular activity.

P3 explained:

“My teacher knows that I have difficulty hearing when she is writing on the board. She stops, turns towards us, and explains again. That helps me a lot because I can see her face and hear her at the same time.”

P2 stated, “When the teacher speaks slowly, I understand much better.”

P7 emphasized peer support:

“My friends know that sometimes I miss things. They don't make fun of me. If I don't understand something, they explain it again. That makes me comfortable asking them.”

P8 described inconsistency:

“Some teachers help me without asking, but some teachers forget that I have a cochlear implant.”

P11 explained:

“Some teachers remember that I cannot hear when the classroom is noisy, so they come closer or repeat the important points. But other teachers just continue teaching. I don't always tell them because I feel embarrassed.”

The importance of teacher responsiveness is supported by Krijger et al. (2020), who identified differences between students' reported listening difficulties and teachers' perceptions of those difficulties. Such

discrepancies may cause teachers to underestimate the amount of effort students require to follow classroom communication. Todorov et al. (2022) similarly emphasized teacher practices and classroom conditions as important factors in facilitating participation among students with hearing loss. Evidence also suggests that assistive technologies can improve access to speech, but their effectiveness depends on appropriate and consistent implementation (Ching et al., 2018). Thus, technological provision alone cannot guarantee inclusion.

The Pakistani context further strengthens the significance of this theme. Ershad and Noreen (2020) identified teacher awareness, training, and differentiated instructional practices as important concerns in Pakistani mainstream classrooms involving students with cochlear implants. The present findings complement this teacher-centered evidence by showing how students themselves experienced variations in teacher support. The findings therefore suggest that teacher knowledge should be translated into consistent classroom practices rather than remaining at the level of general awareness.

Theme 5: Inclusion as a Negotiated Experience

The fifth theme represented the broader meaning participants attached to inclusion. Participants generally appreciated mainstream education and valued friendships with hearing peers. However, their experiences demonstrated that physical placement in a mainstream classroom did not automatically produce meaningful communicative inclusion. Participants described inclusion as dependent on whether they could understand classroom discussions, participate in group activities, communicate with peers, and access informal conversations. Consequently, inclusion appeared to fluctuate across situations. A student might feel included during a structured lesson but excluded during group discussions or informal peer interaction. Another important aspect of this theme was participants' desire for equality rather than special treatment. Students did not necessarily want to be separated from their hearing peers or treated differently. Instead, they wanted communication conditions that enabled them to participate on similar terms. This suggests that inclusion was associated not merely with being present but with having genuine opportunities to communicate and belong.

P1 expressed a positive experience:

“I like being with other students because I don't feel separate from them. I can study with them and take part in activities.”

However, P4 explained:

“Sometimes I am sitting with everyone, but I feel left out. They are talking and laughing, and I know something is happening, but I don't understand what they are saying.”

P5 clearly described the difference between physical presence and meaningful inclusion:

“I like studying in a normal class because I have many friends and I can do the same activities as them. But sometimes I feel that I am there physically but I don't know what everyone is talking about. When the teacher and students help me, I feel included. When they don't, I just stay quiet.”

P9 emphasized:

“I don't need special treatment. I just need people to understand how I communicate. If they speak clearly and give me time, I can participate like everyone else.”

P12 similarly stated, “When teachers and friends support me, I feel that I belong to the class.”

The findings support the distinction between physical integration and meaningful inclusion. Convertino et al. (2014) highlighted the importance of access to incidental information in the educational experiences of deaf learners, demonstrating that learning occurs through more than formal teacher instruction. Marschark et al. (2013) similarly argued against simplistic assumptions concerning communication and learning among deaf and hard-of-hearing students. The findings also correspond with research demonstrating that adolescents with cochlear implants can experience positive educational outcomes while continuing to encounter social and communication challenges (Warner-Czyz et al., 2011). Thus, academic achievement or mainstream placement alone should not be treated as sufficient evidence of inclusion. The participants' emphasis on wanting to participate “like everyone else” also highlights the relational nature of inclusion. Their experiences suggested that inclusion depended on the responses of teachers and peers as much as on their own abilities. Therefore, the cochlear implant should be understood as facilitating access rather than independently guaranteeing participation. Meaningful inclusion required an environment in which communication was accessible, peer interaction was possible, and students felt comfortable advocating for their needs.

CONCLUSION

The study explored the lived experiences of students with cochlear implants in Pakistani mainstream classrooms, with particular attention to communication barriers, classroom and peer participation, coping strategies, and perceived support. The findings demonstrated that cochlear implantation provided important opportunities for educational participation; however, it did not completely eliminate communication difficulties in everyday classroom environments. Participants experienced greater difficulties in noisy classrooms, group discussions, rapid conversations, and situations in which teachers were distant or not visually accessible. The findings further showed that communication barriers affected students' participation beyond academic learning. Some participants reported hesitation in answering questions, reduced involvement in group activities, and difficulty following spontaneous peer conversations. Students developed different coping strategies, including sitting near teachers, watching speakers' faces, asking peers for clarification, requesting repetition, and communicating their needs. However, these strategies did not always remove the underlying communication barriers and sometimes placed additional responsibility on the students. Teacher and peer support emerged as particularly important in facilitating meaningful participation. Participants valued teachers who communicated clearly, faced them while speaking, repeated important information, and demonstrated awareness of their communication needs. Supportive peers also helped students remain involved in classroom and social activities. Overall, the findings indicated that mainstream placement alone did not guarantee meaningful inclusion. Inclusion was experienced when students were able to understand classroom communication, participate actively, interact with peers, and feel comfortable expressing their communication needs. The study therefore highlighted the need for mainstream educational practices in Pakistan to move beyond physical integration and focus on meaningful communicative and social participation.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were proposed:

1. Teacher training on cochlear implant needs

Mainstream school teachers should receive regular training on the communication needs of students with cochlear implants. The training should focus on practical classroom strategies, including appropriate

speaking position, clear communication, repetition of important information, and recognition of signs that a student may have missed information.

2. Improvement of classroom communication environments

Schools should take measures to reduce unnecessary background noise and improve classroom acoustics. Students with cochlear implants should preferably be seated where they have clear auditory and visual access to the teacher. Group activities should also be structured to allow students sufficient opportunity to identify and follow different speakers.

3. Development of individualized communication support plans

Schools should develop individualized communication plans for students with cochlear implants in consultation with the student, parents, teachers, and relevant hearing professionals. These plans should identify the student's specific communication needs and appropriate classroom accommodations.

4. Promotion of student self-advocacy

Students should be encouraged to communicate their needs without feeling embarrassed or stigmatized. Teachers should create a classroom environment in which asking for repetition, clarification, or additional information is considered normal rather than disruptive. This could strengthen students' confidence and classroom participation.

5. Strengthening peer awareness and social inclusion

Schools should promote awareness among classmates regarding communication differences and respectful interaction with students using cochlear implants. Classroom activities should encourage cooperative peer relationships and ensure that students with cochlear implants are not excluded from group discussions or informal social activities.

6. Strengthening inclusive education policies and further research

Educational authorities in Pakistan should incorporate specific guidance for supporting students with cochlear implants within mainstream schools. Further qualitative research should be conducted across different provinces and educational levels to examine the experiences of students, teachers, parents, and school administrators. Future studies should also investigate differences between urban and rural schools and the availability of assistive technologies and specialized support.

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