Growing up as a child with hearing loss in a deaf family

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ABSTRACT

While children with hearing loss born to Deaf parents experience unique developmental and communicative trajectories, conventional early intervention systems often lack the flexibility to support their specific multimodal needs. To address this gap and develop more inclusive models, it is crucial to closely examine the lived experiences of these families. This qualitative single-case study examines the communication dynamics, developmental needs, and ecological challenges faced by a child with profound hearing loss raised in a Deaf household in Türkiye. Data were collected during a four-day intensive playgroup project (PGP) and triangulated through the first author's observations, educator journals, semi-structured interviews, and document analysis. The findings reveal that despite restricted spoken language input, the child demonstrated active engagement and quick adaptation to multimodal communication strategies, combining gestures with emerging vocalizations. However, systemic and sociocultural barriers, such as intergenerational communication differences and educational disruptions due to seasonal agricultural relocations, significantly hindered progress. Ultimately, this case underscores the inadequacy of exclusive, child-centered therapy models for this demographic. To better support these families, early intervention policies must shift towards holistic, family-centered approaches that respect the family's unique linguistic landscape and provide continuous, accessible, and culturally sensitive pedagogical support.

KEYWORDS: Deaf culture; Child with hearing loss; Bilingual/bicultural approach; Multimodal communication

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1. Introduction

1.1. Communication and Hearing Loss in Early Childhood

The ability to communicate closely correlates with the capacity to exist meaningfully within society. From birth, infants engage in communicative interactions; indeed, the neurobiological foundations of language, such as the lateralization of speech discrimination, are evident even in newborns (Bartha-Doering et al., 2025). Contemporary research indicates that early triadic encounters during the first few months seamlessly scaffold later non-verbal communication. Rather than individual milestones, infants cultivate a complex array of prelinguistic behaviors, including pointing, gaze following, and synchronized vocalizations, which emerge towards the end of the first year to convey communicative intent and significantly predict long-term vocabulary development (Çetinçelik et al., 2021; Mendoza-García & Moreno-Núñez, 2023). Despite variations in the functional and effective use of language

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influenced by diverse environmental factors, all infants possess an innate neurobiological potential for language acquisition, with early neural speech processing reliably predicting later grammatical proficiency (Zhao & Kuhl, 2021). To actualize this potential, access to language has historically been deemed essential, primarily via auditory exposure and spoken language input. Recent research emphasizes that early language acquisition is fundamentally multimodal, arising from infants' ongoing integration of auditory stimuli with visual articulation, gestures, and precisely timed caregiver interactions (Göksun et al., 2024; Karadöller et al., 2025; Mason et al., 2019). To understand the early language experiences of children with hearing loss, one must closely examine the family, linguistic, and cultural environments in which they grow up.

Approximately 10% of children with hearing loss are born into families in which at least one parent is Deaf or hard of hearing (Mitchell & Karchmer, 2004). Notably, the majority of Deaf parents have hearing children, and many of these children grow up culturally Deaf, having full access to sign language and the values of the Deaf community from birth (Bishop, 2012). These children often experience distinct language and communication development pathways compared to their peers raised by hearing parents (Rose et al., 2004). When exploring the diverse linguistic environments in which children of Deaf adults are raised, it is important to consider the unique dynamics that shape their early communication experiences. Hearing children of Deaf parents often grow up balancing two cultural and linguistic identities, frequently acting as informal mediators between their Deaf families and the hearing world, a role that can be both socially complex and emotionally challenging (Singleton & Tittle, 2000). These complex identity negotiations are closely intertwined with the linguistic input children receive at home, which is itself deeply influenced by their parents' hearing status.

Parental hearing status plays a critical role in shaping the linguistic environment of children with hearing loss, particularly the frequency and consistency of sign language use. Children with at least one Deaf parent are significantly more likely to be exposed to regular signing, while children with only hard-of-hearing parents tend to encounter sign language less consistently, both at home and in educational settings. Furthermore, this distinction often reflects broader intergenerational hearing patterns; for example, families in which both parents and children are Deaf or have hearing loss, where language use patterns may reflect not only cultural transmission but also hereditary factors (Mitchell & Karchmer, 2005). In addition to the type and consistency of input, the age at which language exposure occurs plays a pivotal role in shaping developmental trajectories. Mayberry (2007) highlighted that the age at which a person acquires their first language (whether spoken or signed) has a major impact on their long-term ability to learn and use language. Findings show that language development depends primarily on how the brain processes language (Petitto & Marentette, 1991) rather than on the way it is received (auditory or visual) or produced (spoken or signed). This supports the broader understanding in cognitive science that early and consistent exposure to an accessible first language is essential for strong and lasting language skills throughout life.

1.2. Communication Modalities, Language, and Cultural Contexts in Deaf Families

While all children benefit from a rich linguistic environment, language acquisition dynamics become more complex in families with diverse hearing profiles. Ecological theory emphasizes that language development is intricately linked to the child's microsystem, encompassing their immediate familial and sociocultural environment. It depends not solely on a parent's linguistic capabilities but also on the quality of daily, reciprocal interactions (Bronfenbrenner, 2000). Consequently, the type of linguistic input and communication modality is critical in shaping early outcomes (Gathercole & Hoff, 2007). Deaf parents often provide rich, multimodal early communication through voice, manual signs, and physical contact, which promotes foundational language development regardless of the

child's hearing status (Moores, 2001). Communication patterns in Deaf-parented families frequently differ from those in hearing-parented families, where language choices are usually influenced by medical advice and societal norms. In many such cases, spoken language takes precedence, which can lead to restricted spoken language if the child is unable to fully access auditory input (Lillo-Martin et al., 2021).

Sign language is a central modality for Deaf parents, who use it with their children regardless of hearing ability. Despite their unique efforts, hearing parents may be reluctant to learn sign language, and their proficiency is often basic to intermediate (Mallory et al., 1993; Lieberman et al., 2022; Pontecorvo et al., 2024). Some families use a bimodal bilingual approach, which includes both sign language and spoken language, particularly when guided by early intervention programs. Studies have demonstrated that these methodologies promote language development without impeding speech acquisition (Szarkowski et al., 2024; Joy et al., 2024). In addition to these primary modalities, families use visual and tactile strategies, including gestures, facial expressions, and touch, as well as assistive technologies to improve communication. Deaf parents demonstrate greater efficacy in employing visual-tactile methods with Deaf children than hearing parents, who predominantly rely on oral-aural strategies (Beatrijs et al., 2019; Depowski et al., 2015). Moreover, augmented reality tools and other assistive technologies are progressively employed to address communication barriers in mixed-hearing families (Meinzen-Derr et al., 2021; Mood et al., 2022).

In summary, spoken language is predominantly emphasized in families with hearing parents and Deaf children, whereas sign language and bimodal communication are more common and seamlessly integrated in families with Deaf parents and hearing children, providing essential insights into how communication modalities influence and reinforce cultural and developmental outcomes. In this context, certain children may emerge as bimodal bilinguals, employing both spoken and signed languages, which entail distinct perceptual and expressive modalities (auditory and visual, and vocal tract and hands), thereby introducing unique dimensions to their communicative development (Bishop, 2012). Furthermore, with over 34 million children worldwide living with disabling hearing loss, defined as hearing loss greater than 35 dB in the better ear, there is a pressing need to explore diverse communicative and cultural contexts, especially as prevalence is projected to rise (WHO, 2021). Despite the unique position of children raised in Deaf families, this subgroup remains relatively underexplored in the literature, highlighting the importance of nuanced, context-sensitive research.

Children with hearing loss raised in Deaf culture may utilize sign language, spoken language, or adopt a bilingual/bicultural methodology. These communication modes are not simply linguistic selections but are ingrained in the cultural and social values of the communities that nurture children. Deaf culture, characterized by visual communication and a collective identity, provides a distinctive environment conducive to early language development when consistent access to language input is available from birth. Nonetheless, access to such resources is not assured in all households. Certain families encounter significant communication difficulties, often stemming from inadequate sign language proficiency and vocabulary disparities between parents and children (Wilhelm, 2006). Compelling evidence indicates that children who receive support through bilingual/bicultural methods exhibit enhanced outcomes across multiple developmental domains, including language (spoken and signed), cognition, and social-emotional well-being (Dammeyer, 2014; Haualand & Grnnings, 2003; Swanwick, 2010). Such methodologies validate the significance of both signed and spoken languages and encourage adaptability in communication, particularly advantageous in multilingual and multicultural contexts. Parental communication preferences significantly influence children's communicative (Nittrouer et al., 2020), cognitive (Yu et al., 2021), and academic

development; therefore, educational systems must be equipped to address diverse linguistic requirements.

Nonetheless, various challenges have been documented concerning the effective execution of these methodologies in Türkiye (Akmeşe & Kayhan, 2016; Selvi & Yıldırım, 2023; Zeshan, 2003a). In Türkiye, obstacles remain in the execution of bilingual/bicultural models. Inadequate early intervention programs, insufficient teacher training in alternative communication methods, and systemic obstacles to accessible education impede the consistent implementation of inclusive strategies (Akmeşe & Kayhan, 2016; Baş et al., 2019; Yıldız & Kaya-Çelik, 2024). Consequently, many children with hearing loss may not receive the timely or culturally appropriate support they need, highlighting the urgent need for policies and practices that align with the language and culture of hearing or Deaf families.

1.3. Research in Türkiye

Many studies in Türkiye have examined the roles and experiences of hearing children with Deaf parents (Bülbül & Poyraz, 2023; Odabaş, 2024; Seven & Göl-Güven, 2016), the experiences of hearing people with family members who have hearing loss (Arsan & Uzuner, 2023; Çolaklıoğlu et al., 2019), and the parenting experiences of Deaf adults (Altuntaş & Karataş, 2025). Although these studies provide important information about how children grow up in Deaf culture in Türkiye, they offer very little information about children with two Deaf parents or those raised in homes that use both sign language and spoken language simultaneously.

Despite the limited empirical research, several studies have shed light on the historical, linguistic, and sociocultural contexts of the Deaf community in Türkiye. Zeshan (2003b) observed that although Deaf individuals in Türkiye have established robust social structures, especially in sports, cultural productions such as sign language theater and literature are underdeveloped. This context indicates a substantial deficiency in the development of cultural identity and historical memory among the Turkish Deaf community. Kemaloğlu and Kemaloğlu (2012) asserted that the exclusive use of hearing aids and speech-based rehabilitation has often proved inadequate to safeguard the physical, mental, and social well-being of children with hearing loss in Türkiye. Furthermore, sign language should not be regarded merely as an educational instrument but as a legally requisite mode of communication in various public services, including healthcare. The authors contended that institutions, such as hospitals and clinics, must be reformed to meet the communication requirements of Deaf individuals via sign language (Kemaloğlu & Kemaloğlu, 2012). The macro focus of existing literature underscores the imperative for a more comprehensive understanding of the intricate experiences of individuals with hearing loss and Deaf families in Türkiye, particularly regarding intra-household communication, an area that remains largely unexamined.

1.4. Research Aims

Despite the growing recognition of the importance of bilingual and culturally aware teaching methods, there remains limited understanding of the intra-household communication dynamics of children with hearing loss raised by Deaf parents, especially when different communication methods are used (Szarkowski et al., 2024). Current research primarily focuses on children with hearing loss who are born to hearing parents or isolates language outcomes, creating a significant gap in understanding the relational dynamics and communication strategies within culturally Deaf family contexts. Language development in children is influenced by various factors, including their cultural environment, socioeconomic status, and the overarching legal and policy frameworks that govern access to early intervention and education. For children with hearing loss, the method of

communication and the quality of linguistic input are particularly vital, especially during the sensitive developmental period from birth to age three. Parents, siblings, and other primary caregivers play a vital role in shaping communication outcomes and promoting early development (Bat-Chava & Martin, 2002). Considering these complexities, it is imperative to analyze real-life household interactions within families comprising Deaf parents and a child with hearing loss. This focus aims to enhance the understanding of how communication is negotiated, facilitated, and maintained within the home environment, ultimately shaping the child's developmental and linguistic trajectory.

This case study enhances the literature by providing a comprehensive, contextualized examination of a culturally Deaf family's communication strategies for their child with hearing loss, particularly in a setting that employs multiple communication modalities. This study aims to thoroughly explore the life of a child with hearing loss born to Deaf parents, focusing on the child's growth, education, and communication needs within a Deaf family that uses multiple modes of communication. Additionally, it investigates the challenges Deaf parents face in promoting their child's linguistic and educational development within a framework often shaped by hearing-oriented norms and practices. To address these aims within the context of a lived experience, the study is guided by the following research questions: (1) What are the characteristics of the family in which a child with hearing loss was born? (2) What are the child's comprehensive developmental, audiological, and educational needs? (3) What specific challenges does the family encounter in raising the child with hearing loss?

Aycan's Story

This case study centers on Aycan (pseudonym), a young girl with hearing loss who was born to Deaf parents. Aycan's story serves as an example of how bilingual communication, hearing loss, and family culture interact in a Deaf home. Her family speaks Turkish Sign Language (TİD) in their small northern Turkish city, but they also use spoken Turkish when they talk to hearing family members and teachers. Both her mother's active involvement in the Deaf community and the family's restricted access to specialized educational support influenced Aycan's early developmental experiences. Depending on the situation and the other person, she uses various modalities in her everyday communication, including lip-reading, home signs, gestures, and occasionally spoken words.

Both of Aycan's parents are members of the Deaf community; however, her mother represents a distinct profile within Deaf culture compared to both the broader Deaf community and Aycan's father. During the data collection period, Aycan's mother was 36 years old. She attained her primary education in the family's hometown and commenced her secondary education in the sole special education classroom available in the city at that time, but subsequently relocated with her family to Istanbul, where she was educated alongside peers with hearing loss during the early years of middle school before completing her education in a mainstream classroom setting. Upon finishing secondary education, she joined the workforce, serving as a seasonal hazelnut laborer in her hometown during the summers and in the textile industry in Istanbul. Concerned that communication exclusively via sign language and lip reading would be inadequate, Aycan's mother pursued a cochlear implant candidacy evaluation and received the implant at the age of 30. This decision profoundly impacted Aycan's developmental path. The mother emphasized the importance of sign language while also expressing a strong desire for Aycan to acquire spoken language skills. Due to the type and degree of Aycan's hearing loss, she was not eligible for cochlear implantation and instead uses bilateral behind-the-ear (BTE) hearing aids.

At 12 months old, Aycan began receiving early intervention services at a Special Education and Rehabilitation Center (SERC). According to the SERC director, Aycan did not consistently attend

intervention sessions throughout the summer. To mitigate these disruptions, the director indicated that supplementary initiatives would be undertaken to invite Aycan to the center and enhance her exposure to spoken language. The SERC facilitated Aycan's participation in a playgroup program to enhance her developmental progress. At the time of data collection, Aycan was in the process of enrolling in kindergarten. Her mother and maternal aunt, serving as an interpreter, reported persistent efforts to ensure Aycan's enrollment in a full-time preschool program. Aycan's mother, Mrs. Ayşe, also has six siblings. One of them is also a member of the Deaf community. Besides this, Aycan's aunt's child has congenital hearing loss. This cousin received an early diagnosis, was provided with hearing aids, and has consistently participated in educational programs. They can now engage in verbal communication with their peers while using their hearing aids. During the summer months, Aycan regularly socializes and plays with her cousins, a group that includes both hearing children and those with hearing loss, all of whom are in a similar age range. According to the aunt, these seasonal interactions provide notable developmental benefits for all children involved. Moreover, video-mediated communication on social media platforms is integral to Aycan's daily life, facilitating continuous visual engagement with family members and supporting her communicative development (Interview, lines 446–448). Aycan's story offers a contextualized explanation of how language use, hearing loss, and family culture interact in a Deaf parent's day-to-day life.

2. Methods

2.1. Research Design

This study was structured as a comprehensive single-case analysis to systematically investigate the experiences presented in Aycan's story. This method facilitates a comprehensive and contextual examination of a phenomenon in its natural environment (Bogdan & Biklen, 2007). The design seeks to elucidate the developmental traits and distinct needs of a child with hearing loss who is born to Deaf parents. This qualitative study aims to develop a thorough understanding of the child's linguistic, communicative, and educational experiences by synthesizing data from various sources and viewpoints.

2.2. Participants

The case centers on a child with hearing loss, Aycan, who was born into a Deaf family. Additional participants included the child's mother, two maternal aunts, special education teachers, the principal of the child's school, and the instructors of the playgroup program the child attended (Table 1). All participants were apprised of the research objective, and their involvement was voluntary.

Table 1 ***Key Individuals in Aycan's Family and Social Environment***

Pseudonym	Relationship to Aycan	The Role in Aycan's Life	Hearing Status	Primary Communication Mode
Ahmet	Father	Limited interaction: infrequent in-person contact and occasional video calls	Deaf	Turkish homesign
Ayşe	Mother	Primary caregiver; lives with Aycan	Deaf / restrictive spoken language	Turkish homesign; limited spoken words

Pseudonym	Relationship to Aycan	The Role in Aycan's Life	Hearing Status	Primary Communication Mode
Ayşe's mother	Grandmother (maternal)	Regular contact during visits to grandmother's village home	Hearing	Spoken Turkish
Ayşe's sister	Maternal aunt	Lives in the same city; occasionally acts as an interpreter and supports official procedures	Hearing	Spoken Turkish
Ayşe's older sister	Maternal aunt / mother of a child with hearing loss	Lives in a different city; frequent summer contact; supports Aycan's language development using strategies learned for her own child	Hearing	Spoken Turkish

2.2.1. Researcher and Participant Researcher Role

In this study, the first author served as a participant observer, initiating the primary interaction with Aycan. Specifically, the researcher served as one of Aycan's special education teachers in a playgroup program. To preserve the natural dynamics of the family environment, the researcher made a conscious effort to maintain a strictly non-interventional stance outside the play sessions throughout the entire data collection process (Christensen et al., 2015). Furthermore, in adherence to ethical research practices, once the data collection phase was complete, the researcher provided tailored guidance and recommendations regarding Aycan's development to her family and to the director and teacher of the SER upon their explicit request.

2.3. Data Collection

To ensure data richness and triangulation, a variety of qualitative methods were utilized (Table 2). These included semi-structured and unstructured interviews, the first author's observations during the playgroup project (Ertürk-Mustul & Baş, 2024), document analysis, and the reflective journals of both the first author and the playgroup special education teacher. All data were collected between May 30, 2024, and September 15, 2024. A semi-structured interview was conducted with the Deaf mother after obtaining informed consent. Prior to the interview, the study's objectives and methodology were thoroughly explained. At the mother's request, her hearing sisters (the child's aunts) participated in the session to facilitate communication across Turkish Sign Language, Turkish homesign, and spoken Turkish as needed. The mother primarily relied on lip-reading and articulated her thoughts independently; in instances of doubt, she sought counsel from her sister. The assembled dataset comprises two semi-structured interviews, two unplanned observations at the SERC, four institutional documents (including educational assessment forms and Special Needs Report for Children), a teacher's journal from the Play Group Program, and six pages of researcher field notes. A data collection matrix is presented in Table 2 to ensure methodological transparency and to clearly demonstrate the alignment between the research questions and the collected data.

Table 2 *Data Collection Matrix*

Research Questions	Observations Play Group	Observations Home	Family Interviews	Documents	Journals Teacher	Journals Researcher
What are the characteristics of the family into which the child with hearing loss was born?			X	X		X
What are the child's comprehensive developmental, audiological, and educational needs?	X		X	X	X	X
What specific challenges does the family encounter in raising the child with hearing loss?	X		X	X	X	X

Note. * Refers exclusively to the observational data collected by the first author. ** The research diary maintained by the project coordinator (a special education teacher and non-author) was incorporated into the analysis with explicit prior permission.

2.3.1. The Play Group Program

The Play Group Program (PGP) offers early intervention services that create a stimulating environment for young children (0–3 years) and their parents to engage with peers, thereby promoting holistic development and enhancing interactions among parents and between parents and children (Finch, 1984; Hancock et al., 2012; McLean et al., 2014). During the data collection period, Aycan and her mother participated in a distinctive four-day intensive PGP entitled "Learning with Play: Playgroup Program for Children with Special Needs and Their Mothers," endorsed by the Scientific and Technological Research Council of Türkiye (TÜBİTAK), from September 3 to September 6, 2024. The daily schedule of the program included free play, circle time, art, music activities, and snack time. The program was conducted by researchers and educators specializing in special education with a focus on hearing loss. They closely observed Aycan and her mother, evaluated the child's developmental milestones, and provided targeted pedagogical recommendations to the family (Ertürk-Mustul & Baş, 2024). As a rare opportunity to observe Aycan in a structured, language-rich social environment, the PGP provided a significant portion of the qualitative dataset for this study. This four-day intervention produced reflective field journals of the special education teacher who led the PGP, a detailed researcher journal from the first author, who was also a PGP researcher, as well as various developmental documents.

2.4. Data Analysis

All data were analyzed using a descriptive analysis approach (Yıldırım & Şimşek, 2021). The analysis consisted of two stages: preparation and the analytical process. During the preparation stage, the interviews were transcribed, and the accuracy of these transcriptions was verified by an independent special education teacher. Observations, researcher diaries, interviews, and documents were compiled to establish a comprehensive dataset. Within this dataset, the first author conducted the

primary analysis, while the second author, who was not involved in data collection, provided critical feedback on the descriptive categories. Consequently, the findings were organized into three primary categories to directly address the research questions. In presenting the findings, direct quotations from the observation and interview data were included to enhance the transparency and credibility of the research (Gay et al., 2012; Yıldırım & Şimşek, 2021).

2.5. Credibility and Ethical Considerations

Methodological triangulation was utilized to enhance credibility and trustworthiness by integrating various data collection techniques (Brantlinger et al., 2005). The researcher (first author) meticulously documented field notes and reflective journals from the commencement of the study. The accuracy of the data was confirmed via transcript verification, and multiple readings facilitated a comprehensive understanding. Direct quotations were employed to accurately convey the participants' perspectives. Pseudonyms were allocated to all participants, and identifying information, including city names, was eliminated to maintain confidentiality. All procedures were executed in compliance with ethical research standards. Ethical approval was obtained from the Ordu University Ethics Committee (Decision No. 2024-151, October 25, 2024).

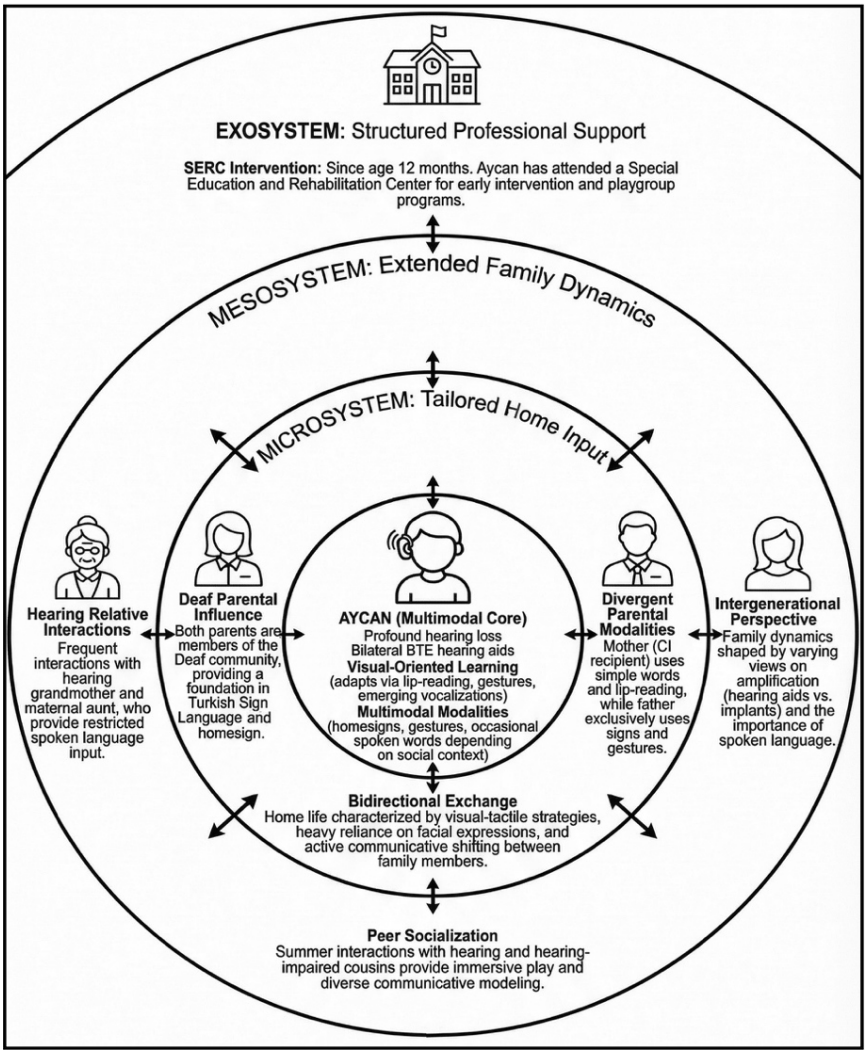
3. Results

This study aimed to thoroughly investigate the experiences, needs, and dynamics of a family raising a child with hearing loss, with particular emphasis on the distinctive context of deaf parents. After conducting a thorough descriptive analysis of the triangulated data, the findings were organized to directly respond to the primary research questions. Consequently, the findings were organized into three primary descriptive categories corresponding to the research questions: (1) the attributes of the family environment into which the child was born; (2) the holistic developmental, audiological, and educational needs of the child; and (3) the particular difficulties faced by the family in nurturing the child.

3.1. Family Characteristics and Communication Dynamics

The initial research question aimed to define the attributes of the family environment in which a child with hearing loss is born. The findings indicate that Aycan is currently being reared by a single parent with substantial support from an extended family network. Just prior to the initiation of the data collection phase, Aycan began residing solely with her mother. Thus, her principal communicative and social network consists of a closely connected group of maternal relatives, namely, her mother, grandmother, and aunt. These individuals form the foundation of her daily upbringing, providing essential context for her linguistic development and social interaction. Despite the father's inclusion in her broader family network, Aycan's direct and frequent interactions primarily stem from her maternal extended family. A summary describing Aycan's family and the relatives with whom she interacts most frequently is depicted in Figure 1.

Figure 1 *The communicative approaches and changes within Aycan's ecological systems*



Note. The figure illustrates Aycan's ecological systems and communicative dynamics.

An important aspect of family traits relates to communication methods. Aycan's parents were both raised in Deaf culture; however, their preferred methods of communication differed. Mrs. Ayşe, Aycan's mother, is an adult with a late diagnosis of profound hearing loss who lacked access to early childhood special education. She spent most of her primary school years in a special education classroom with deaf peers at a public school, ultimately completing her primary and secondary education in inclusive general education settings in another city. At the age of 30, Mrs. Ayşe underwent cochlear implant surgery to enhance her spoken language abilities (Information form, August 2, 2025). She stated that conventional hearing aids were insufficient for her needs and that the cochlear implant greatly enhanced her auditory comprehension. This experience was shared during an interview mediated by her sister (Interview, lines: 266–269):

> Researcher (R): "So, is the device good? Does she recommend it to everyone?"
>
> Mrs. Ayşe: "Good, everyone should get it. [She] doesn't understand the other device. This is better."
>
> R: "The implant?"
>
> Aunt: "She says the implant is better. Because the sound goes to the brain. She understands."

Mrs. Ayşe reported enhanced auditory perception following implantation, noting that she had primarily relied on lip-reading for receptive communication. She attempted to communicate using limited, simplistic, single-word expressions (Playgroup project observation; researchers' journal, line: 46). The complexities of interacting with Mrs. Ayşe are further detailed in the researcher's field notes, which highlight the reliance on non-verbal cues:

> Researcher's journal, line 46: "Mrs. Ayşe explained to me that Aycan is always this insistent at home and is resistant when it comes to getting what she wants. Of course, it was not easy for me to understand this. I managed to comprehend it by closely following the gestures and facial expressions of both Mrs. Ayşe and Aycan."

Ultimately, the data indicate that Mrs. Ayşe's primary communication modalities included articulation of simple single words, lip-reading, and home signing. Information about Aycan's father, Mr. Ahmet, was obtained exclusively from the accounts provided by Aycan's mother and maternal aunt. Mr. Ahmet and Mrs. Ayşe attended the same primary school (information form, August 2, 2025), and Mr. Ahmet is a high school graduate. He is presently engaged in a minimum-wage income-generating role. At the time of data collection, he and Mrs. Ayşe were in the process of divorcing. Mr. Ahmet exclusively utilized sign-based communication and encountered considerable challenges with lip-reading (interview, line: 490). His communication modality and interactions with Aycan are further elaborated in the following interview excerpt (interview, lines: 486–492):

> R: "How is Aycan's relationship with her father? Does Aycan talk to her father?"
>
> Mrs. Ayşe: "Hand signs."
>
> R: "Fingerspelling... Does Aycan understand?"
>
> Aunt: "She doesn't understand [complex signs]; she understands from gestures. [Things like] 'let's go,' 'let's come'... but right now, her husband cannot speak either. I tell him, 'Don't use gestures,' but he can't speak. What is he forced to do? He has to use gestures; he cannot speak, no sound comes out right now."

In addition to her immediate parents, Aycan's extended family plays a crucial role in her social environment. During the three-month summer vacation, when schools are closed, Aycan frequently stays at her maternal grandmother's village house and at her city-center residence. The grandmother, who has typical hearing, spends a significant amount of time with Aycan. Furthermore, during the summer months, Aycan's hearing-impaired cousins also visit the grandmother's house for extended periods. Aycan regularly interacts and plays with these cousins, particularly with a hearing-impaired cousin of a similar age. This cousin has profound hearing loss, but was diagnosed early and immediately began receiving special education. Although slightly delayed relative to typical developmental milestones, this cousin uses spoken language in a manner highly comparable to that of hearing peers (Interview, lines: 642–646). Consequently, Aycan benefits from approximately one month of immersive play and communication with her cousins each summer. Aycan's maternal uncle experiences post-lingual hearing loss; however, he maintains the capacity for speech. However, his direct interactions with Aycan are relatively infrequent.

In summary, rather than a static demographic background, Aycan's family structure constitutes a highly dynamic and complex linguistic ecology. She is maturing in an environment that requires her to continuously navigate diverse communication modalities, from tailored homesign with her Deaf parents to restricted spoken language with extended family members. Furthermore, the varying intergenerational perspectives on deafness, amplification, and spoken language actively shape the daily input she receives. Consequently, this profound reliance on customized gestural

communication establishes a distinctive developmental context. This unique familial landscape not only describes her background but also actively dictates the highly specific communicative, audiological, and educational pathways she requires.

3.2. Aycan's Comprehensive Developmental, Audiological, and Educational Needs

The second research question aimed to identify the child's comprehensive developmental, audiological, and educational needs within her unique familial context. During the data collection period, Aycan was approximately three and a half years old. She received a diagnosis of profound bilateral hearing loss after newborn hearing screenings and was fitted with her initial bilateral hearing aids at six months of age (information form, August 2, 2025). According to her mother's statements, Aycan uses her hearing aids consistently. Educationally, Aycan has been attending an SERC since approximately age 1. Nonetheless, her formal education undergoes an interruption of nearly two months during the summer. This disruption was linked to the family's seasonal move to her grandmother's village. Aycan's maternal aunt expressed this interruption of routine:

> Interview, lines 773–774: "Aycan might not be able to go [to the center] in August; it's hazelnut season now, so Ayşe will be going to the village. She'll be spending some time here and some time there."

Aycan, who experienced early childhood during the COVID-19 pandemic, spent a significant portion of this critical developmental period at home with her deaf parents. At the time of the study, her social interactions were limited to family members residing with her mother and grandmother. Observations from a PGP aimed at enhancing her communication abilities indicated that Aycan had restricted access to spoken language. Instead, she primarily communicated using sign-based representations, similar to those used with her father, and demonstrated a strong reliance on lip-reading. Despite this restricted spoken language input, observations by the special education teacher and researcher in the PGP revealed that Aycan demonstrated active communicative efforts and high engagement during the sessions. The special education teacher, an expert in hearing loss, evaluated Aycan on the first day of the PGP, emphasizing her core strengths and the urgent need for appropriate linguistic input:

> Teacher's journal, September 3, 2024: "I didn't hear much expressive language while she was playing with me, but I heard more when she played with the researcher. Even though she does not hear spoken language [in her daily environment], she is in a very good state. She is a child who could be exceptional if adequately exposed to spoken language."

The immediate impact of a language-rich environment became evident by the second day of the program, as Aycan quickly began to express herself using single words (Researcher's journal, September 4, 2024). The researcher documented this rapid expressive language emergence in the field notes:

> Researcher's journal, September 4, 2024: "The beautiful thing was that Aycan started saying 'öretmen' [target word: öğretmen (teacher); demonstrating phoneme omission], pointing to me [the other special education teacher], and occasionally the project team throughout the day. It was particularly beneficial for her to play with the doll and the doctor's outfit. She has started to express herself more confidently. At times, when a friend took her toy, she got angry at her mom and said, 'menim, al' [target word: benim (mine); demonstrating phoneme substitution]. While looking at the storybook, she frequently spoke spontaneously, supplementing her spoken words with gestures and facial expressions."

Aycan participated in the PGP alongside her mother for four consecutive days. The daily schedule of this intensive program consisted of free play, circle time, sensory and music activities, and snack time. During free play sessions, Aycan actively interacted with her mother and peers, participated in circle time, and consistently endeavored to express her thoughts and needs during her turn in all activities. By the fourth day of the program, observations indicated that Aycan increasingly attempted to combine vocalization with her requests. The special education teacher documented this rapid progression in expressive communication:

> Teacher's journal, September 6, 2024: "While playing with Aycan, I turned my back for a moment, and she called me by touching my shoulder. I told her, 'You can say öğretmenim bak [my teacher, look].' I only modeled it once. A considerable amount of time passed; I believe it was after the sensory play. Aycan had climbed the climbing wall. She called out to me, shouting, 'Öğretmeeen bak' [Teeeacherrr, look]."

Moreover, the PGP observations indicated that Aycan had the inherent ability to construct basic, two-word, action-oriented sentences when given suitable linguistic stimuli. The researcher detailed the emergence of these expressive language milestones in field notes:

> Researcher's journal, September 3, 2024: "Today, Aycan formed simple two-word sentences such as 'elma bitti' [apple finished], 'elma yedi' [ate apple], and 'bebek istiyo' [baby wants]."

At the conclusion of the PGP, during the evaluation team meetings, the special education teacher and researcher reached a consensus: in comparison with the first day, Aycan exhibited increased effort to combine vocalizations with her gestural communication and demonstrated a sustained willingness to express her requests interactively. Qualitative observations highlighted Aycan's active engagement in daily routines and play. Specific instances demonstrating her cognitive and motor participation during these activities were noted in the special education teacher's journal:

> Teacher's journal, September 3, 2024: "Her symbolic play skills were well-developed, as were her fine motor skills... She tracked her environment beautifully, and her reactions and responses were excellent."

Furthermore, the researcher noted the child's ability to engage in complex play despite communication barriers:

> Researcher's journal, September 3, 2024: "I observed that Aycan, whose mother is deaf, sets up play scenarios beautifully... Aycan and her mother played a doll dressing game. The mother demonstrated how to feed the baby and comb its hair. Together with her child, they braided the toy doll's hair."

Despite these strengths, the special education teachers found Aycan's rapid ability to engage in play with peers and her emerging use of multimodal communication particularly noteworthy given the short timeframe. Aycan is a child with profound hearing loss who is growing up in an environment characterized by restricted spoken language input, limited peer interaction, and, largely due to the pandemic, a history of being confined to the home setting with her deaf parents. The extent of her limited social engagement prior to the program was emphasized by her aunt, who noted her restricted interactions even in public spaces like playgrounds:

> Interview, lines 394–395: "She doesn't speak; she is alone... Well, they go [to the park] a lot, but always by herself... her mother pushes her on the swing, the slide next to her mother... honestly, there isn't that kind of [social] environment in the parks."

Given this isolated background, the teachers found Aycan's better-than-expected skills, such as interacting with peers, expressing her desires, and clearly conveying dissent during play, to be noteworthy. The special education teacher reflected on these dynamics and offered potential explanations for her high level of engagement and readiness for structured learning:

> Teacher's journal, September 6, 2024: "I found it quite interesting that a child with so little exposure to spoken language could suddenly produce these words (like 'öretmen', 'bak' [teacher, look]). Two possibilities came to my mind... The second possibility is that, being a highly intelligent child, she benefited immensely from the four-day spoken environment, and a miracle happened. Or, because the grandmother and others use spoken language at home, she is already benefiting there; however, since the mother does not speak, she primarily relies on gestures and facial expressions. Regardless, for a child who hears and uses spoken language so little, I think Aycan is in a very good state... I believe Aycan's potential is excellent. Besides all this, Aycan is a child who understands boundaries very well, accepts them, and can express her wants or desires, even if through signs."

In light of these positive qualitative observations from the educator and the researcher concerning Aycan's active participation, a decision was made to conduct a formal evaluation of her cognitive development. An assessment practitioner with specific expertise in the cognitive evaluation of students with hearing loss was requested to conduct the assessment. During the session, which took place at the SERC, the practitioner planned to administer Raven's Colored Progressive Matrices, an attention test, and tablet-based speed tests. However, Aycan displayed significant reluctance and refused to complete the assessments with the practitioner. The practitioner recorded Aycan's opposition to the evaluation process in the assessment report:

> Aycan's cognitive development assessment report, October 17, 2024: "The child's initial reaction was to push the materials on the desk away with her hand, indicating her refusal. As the interaction continued, attempts were made to draw her attention to different materials. A tablet, in particular, usually breaks through the resistance of many children; however, this child's resistance persisted. [After the researcher left the room], the child repeatedly stated that she did not want to participate in the activities. She gravitated toward the toys in the classroom and ignored any prompts."

Consequently, the intended standardized cognitive assessments could not be conducted. Nonetheless, the practitioner engaged with Aycan for approximately 20 minutes in the SERC resource room. Based on these interactions and observations, the practitioner provided the following developmental insight:

> Aycan's cognitive development assessment report, October 17, 2024: "It was observed that the child is highly perceptive and can comfortably express her desires through language, gestures, and facial expressions; however, she exhibited high resistance and created an emotional barrier. Because she could not engage with the test administrations, no definitive inference could be made regarding her cognitive level."

Although a comprehensive standardized cognitive profile was unattainable, clinical observations validated prior findings concerning Aycan's communication abilities. Aycan was consistently characterized as a child who clearly and occasionally assertively conveyed her preferences and boundaries, primarily through gestures and facial expressions. In summary, the data addressing the second research question reveal a complex developmental profile. Observations indicated that Aycan demonstrated a high level of visual attention to facial expressions and environmental cues.

Despite her restricted spoken language input, she exhibited persistent, goal-directed behavior, robust play skills, and a quick adaptation to expressive communication strategies in a language-rich, supportive environment, such as the PGP. However, her reluctance during structured formal assessments and her primary reliance on non-verbal communication require continuous, specialized, and engaging educational interventions.

3.3. Specific Challenges Faced by the Family

The final research question aimed to identify the distinct daily obstacles faced by the family in raising a child with hearing loss, especially within the complex structure of a household with deaf parents. An examination of the triangulated data indicated that these challenges predominantly arise from intergenerational conflicts concerning communication methods and the significant necessity for organized parental education. A significant challenge within the family ecosystem is the disagreement over which communication modality Aycan should prioritize. The data indicate a transfer of communication ideologies across generations. Aycan's grandmother historically declined to learn or utilize sign language with her deaf daughter (Mrs. Ayşe), insisting on lip-reading to compel her adaptation to the hearing world. Aycan's maternal aunt elucidated this historical context:

> Interview with maternal aunt, lines 233–236: "Yes, she always read lips like that. For example, my mom [Aycan's grandmother] wouldn't use signs... she wasn't inclined towards it... she didn't want [Ayşe] to learn sign language so that she would read lips and improve herself... Because writing is different, not everyone can understand it, but by reading lips, she can understand even you."

Mrs. Ayşe, significantly influenced by her mother's methods, now anticipates that her daughter Aycan will communicate through spoken language and lip-reading, rather than exclusively using sign language. This approach creates a distinct point of conflict with Aycan's father, who relies exclusively on gestures and sign-based representations. Mrs. Ayşe articulated her discomfort and frustration regarding the father's incapacity to communicate verbally with Aycan:

> Interview, lines 493–494: "She doesn't understand [complex signs], she understands from gestures... I tell him [the father], 'Don't use gestures,' but he can't speak. What is he forced to do? He has to use gestures."

This ideological conflict over communication methods results in a fragmented linguistic environment for Aycan, posing a distinct challenge as she must navigate varying and occasionally contradictory expectations from her parents and extended family. Another significant challenge identified by the data is parents' insufficient pedagogical repertoire to facilitate children's language development. As a deaf mother raising a child with profound hearing loss, Mrs. Ayşe initially lacked targeted strategies to promote expressive language and often exhibited excessively controlling behaviors during play. Qualitative observations and reflective evaluations following the PGP revealed the mother's strong responsiveness to direct pedagogical support. Throughout the program, as educators modeled specific techniques, such as the "listen and say" strategy, researchers noted a positive shift in the mother's interaction style. She demonstrated a growing recognition of the value of these strategies and actively sought to increase her communication with Aycan. Furthermore, observations indicated a noticeable transition towards more autonomy-supportive parenting; the mother significantly reduced restrictive directives and increasingly allowed Aycan to navigate social interactions with her peers independently. However, alongside these communicative gains, the data also highlighted the family's ongoing challenges in managing structured daily routines and transitions. These instances point to the need for continuous, structured family education.

Ultimately, these findings reinforce that the primary focus of early intervention must extend beyond the child's audiological profile. It is equally essential to actively equip deaf parents with accessible resources, pedagogical methodologies, and emotional support required to cultivate an enriching communicative environment at home. In addition to the need for daily pedagogical strategies, another systemic challenge is ensuring the continuity of Aycan's early intervention. The family's sociocultural practices, particularly their relocation to the grandmother's village during the hazelnut season, cause an almost two-month disruption in Aycan's formal education at the SERC. This recurring disruption points out a serious deficit in family awareness regarding the absolute necessity of uninterrupted early intervention, particularly for a child with profound hearing loss growing up in a linguistically restricted environment. The director of the SERC highlighted the institution's proactive efforts to mitigate Aycan's social and linguistic isolation:

> Playgroup interview, November 20, 2024, lines 8–14: "We treat Aycan with particular sensitivity. Because her parents have hearing loss, she is exposed to spoken language much less frequently. For this reason, I specifically requested that the family bring Aycan to the SERC at convenient times [even outside of her scheduled lessons]. We created opportunities for her to interact with other peers waiting for their lessons in a suitable area."

The institution's efforts to address the child's linguistic deficiency innovatively are hindered by the family's traditional summer disruptions, highlighting a critical challenge: reconciling the family's sociocultural practices with the stringent requirements of special education. Confronting this challenge necessitates extensive family counseling and empowerment. Parents require focused assistance to cultivate a profound understanding that continuous, year-round educational engagement is essential, not optional, and must be harmonized with seasonal family responsibilities.

In summary, the findings regarding the third research question reveal that the family's challenges extend far beyond the child's audiological profile. Aycan's family faces a multifaceted array of challenges, primarily characterized by intergenerational disputes over preferred communication methods, a clear absence of home-based language-enhancement strategies, and sociocultural practices that significantly hinder the consistency of early intervention. The interconnected challenges underscore that enabling a deaf parent to raise a child with hearing loss demands more than mere access to a rehabilitation center; it requires thorough, culturally attuned family education and counseling. Equipping parents with effective communication tools and strategies, and cultivating a profound understanding of the necessity of continuous educational support, are vital measures to alleviate the child's linguistic isolation and optimize their developmental potential. Transforming this intricate family microsystem from a site of communicative discord into a supportive linguistic environment necessitates early intervention policies that acknowledge, honor, and actively promote the distinct sociocultural realities of diverse deaf households.

4. Discussion

This qualitative case study examined the communication dynamics, extensive developmental needs, and distinct family challenges of a child with hearing loss raised by Deaf parents. The results indicated a complex linguistic environment characterized by multimodal communication practices within the household. While initial observations highlighted Aycan's active engagement and quick adaptation to structured routines, it is crucial to interpret these short-term observations carefully. As noted in the findings, special education teachers initially perceived this rapid adaptation as "exceptional developmental potential." However, rather than signifying a miraculous four-day linguistic leap, this

perception likely stems from the educators' own pedagogical frameworks, their familiarity with normative developmental milestones, and their inherent positive expectations regarding the efficacy of the PGP intervention. The stark contrast between Aycan's prior pandemic-induced confinement and her sudden exposure to a highly interactive, supportive setting may have led the teachers to interpret her willingness to communicate as rapid linguistic acquisition. Instead of a dramatic acquisition of spoken words, a more realistic finding of this study is Aycan's ability to rapidly engage and utilize multimodal strategies, combining her existing gestural repertoire with emerging vocalizations, within just four days of participating in the PGP. This observation corresponds with existing literature on language acquisition in home settings characterized by restricted spoken language input (Hackworth et al., 2017; Turan, 2021). Research consistently indicates that children with hearing loss from households utilizing sign-based communication or gestures can show significant communicative responsiveness when introduced to immersive, language-rich settings, such as playgroups (Allen & Morere, 2020; Humphries et al., 2022; Mercure et al., 2025). While substantial improvements in communication can be achieved through intensive intervention (Roux & Stander, 2021), a four-day program primarily serves to highlight the child's readiness for structured learning rather than measurable linguistic milestones. As Lederberg et al. (2012) point out, initial delays in language development may persist for these children compared with peers who had continuous input from birth, underscoring the importance of providing Aycan with sustained, long-term, and multimodal educational support to help her communicate effectively.

Family dynamics make it difficult to realize this potential. The data highlighted profound intergenerational tension regarding communication modalities. The grandmother's insistence on oralism and lip-reading created a highly fragmented linguistic environment for the child, in contrast to the father's reliance on gestures and the mother's conflicting expectations. This finding illustrates wider sociolinguistic issues identified in the literature, indicating that intergenerational conflict frequently occurs in Deaf families when grandparents support oralism while parents favor sign language communication (Kanto et al., 2013; van der Zee & Dirks, 2022). Such inconsistent or conflicting communication modalities within the family system can create significant confusion and stress for the child. Kanto et al. (2013) asserted that when children are compelled to favor one modality over another, it impedes intergenerational comprehension and can adversely impact family cohesion and the child's sociolinguistic identity.

This study also found that the family's sociocultural routine, such as relocating to the village for two months during hazelnut season, presented a practical barrier to Aycan's educational continuity. This finding strongly suggests that continuity in early intervention supports the optimal development of children with hearing loss (Holzinger et al., 2022; Yoshinaga-Itano, 2020). Interruptions due to seasonal relocations or sociocultural practices can disrupt the momentum of language acquisition. Brief interruptions during critical developmental phases can pose challenges to expressive communication, pragmatic abilities, and social-emotional growth (Yoshinaga-Itano et al., 2020). Longitudinal studies indicate that enriched home language environments can mitigate the adverse effects of interrupted interventions (Dickerson et al., 2025; Holzinger et al., 2022). However, families facing systemic communication barriers, such as Aycan's, may find it more difficult to navigate these service disruptions independently. Given Aycan's environment of restricted spoken language input, these gaps in formal educational support underscore the urgent need for flexible, continuous intervention models tailored to such specific family contexts.

Finally, these findings emphasize that a child-centered approach alone cannot address the complex needs of a child with hearing loss born to Deaf parents. It requires a holistic, family-centered

approach that provides individualized support (Gomes et al., 2025), respects the family's unique linguistic landscape (van der Zee & Dirks, 2022), and actively equips parents with accessible strategies necessary to maintain a continuous and enriching communicative environment (Hassanzadeh, 2012).

5. Conclusion

This qualitative case study highlights the profound complexities of raising a child with hearing loss in a Deaf family context. According to educators at both the PGP and SERC, Aycan can further enhance her multimodal communication by systematically attending educational programs that address her specific linguistic and developmental needs. However, for such consistent progress to occur, it is recommended that she be placed in inclusive environments where she can engage in play and social interaction tailored to her communicative requirements. While Aycan occasionally accesses these environments, her systematic participation is hindered by various contextual challenges. These challenges include intergenerational communication differences, parents' need for accessible pedagogical strategies, and sociocultural routines that disrupt educational continuity. Owing to communication issues and the father's limited participation in SERC sessions and interviews, this study was unable to obtain comprehensive data from him. Future research should strive to incorporate inclusive methodologies to capture the perspectives of all primary caregivers.

These findings indicate that concentrating exclusively on a child's specific educational or audiological requirements is inadequate. Interventions must prioritize timely, consistent access to a rich linguistic environment and provide culturally sensitive counseling to help families navigate intergenerational tensions. Furthermore, professionals must proactively address sociocultural barriers by developing flexible support mechanisms to ensure the continuity of interventions. Ultimately, adopting a holistic, family-centered approach is essential; empowering deaf parents with actionable pedagogical tools is as critical as the direct therapy provided to the child. Given these profound ecological needs, there is an urgent need to revise early intervention policies in Türkiye. Systematic playgroup programs tailored specifically for the 0–3 age group should be expanded and standardized nationwide. Additionally, SERCs need to move beyond traditional models that focus solely on the child and instead integrate structured, family-centered educational programs. Government-funded special education policies should actively support and empower parents, especially those with diverse communicative or physical needs, transforming them into skilled facilitators of their child's linguistic and cognitive development in naturalistic home environments.

6. Declarations

6.1. Author Contributions (CRediT)

The first and second authors contributed equally to the study's conception and design, data analysis, and the writing and critical revision of the manuscript. The first author conducted the primary data collection (observations and interviews), and the primary contact is the person who is introduced to the child and their family and maintains active interaction throughout the research. Both authors read and approved the final manuscript.

6.2. Conflict of Interest

The authors declare that they have no affiliations with or involvement in any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript.

6.3. Funding Statement

The authors declare that the study received no funding.

6.4. Data Availability Statement

Research data are not shared publicly due to ethical constraints and participant confidentiality. Data supporting the findings of this study are available within the article.

6.5. Ethics Approval

Ethical approval was obtained from the Ordu University Ethics Committee (Decision No. 2024-151, October 25, 2024).

6.6. Use of Artificial Intelligence (AI) Tools

During the preparation of this work, we used Grammarly from November 2025 to February 2026 to edit manuscripts. After using this tool/service, we reviewed and edited the content as needed and take full responsibility for the publication's content.

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