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The Impact of Early Diagnosis and Therapy on the Development of Children with Autism Spectrum Disorders

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Abstract: *Background*: Neurodevelopmental disorders, including autism spectrum disorders (ASD), are increasingly diagnosed in children, but low awareness, delays in diagnosis, and poor service coordination complicate therapy and negatively affect family quality of life.

Objective: This study aimed to assess the importance of early detection of ASD and the role of therapeutic interventions in improving child development and family well-being.

Methods: Using a qualitative approach, the study involved interviews with 20 pairs of parents of children with ASD and thematic analysis, considering gender, age, and behavioral characteristics, supplemented by the Parental Stress Scale.

Results: Early diagnosis (before age 3, 60%) was associated with faster progress compared to late diagnosis. In the early diagnosis group, behavioral therapy, sensory integration, and speech therapy led to improvements in non-verbal communication, reduced sensory hypersensitivity, and decreased aggression. In the late-diagnosis group, with greater use of behavioral therapy and individual education plans, progress was slower, with improvements in speech, reduced aggression, and less social isolation. Parents reported reduced anxiety and improved family relationships, especially in early-diagnosis cases. Barriers included delays in diagnosis (18-24 months), stigma, and inadequate infrastructure.

Conclusion: The findings highlight the effectiveness of early intervention and the need for standardized diagnostic procedures, parent education programs, professional training, and improved infrastructure to support families raising children with ASD. These results can guide intersectoral cooperation, policy development, and support strategies for families.

Keywords: Neurodevelopmental disorders, anxiety, neuropsychiatric development, parenting, psycho-emotional reaction, depressive state.

INTRODUCTION

Neurodevelopmental disorders manifest as deviations or delays in the development of key mental functions, such as speech, social interaction, behavioral control, and attentional focus. Among the most common forms of these disorders are attention deficit hyperactivity disorder (ADHD) and obsessive-compulsive disorder. Parenting involves deep emotional involvement, expectations, and responsibility for a child's harmonious development. However, when neurodevelopmental disorders - particularly autism spectrum disorder (ASD) - are detected, this experience becomes a difficult challenge for both the child and their family. According to estimates by the World Health Organization, about 1% of children worldwide are diagnosed with ASD, although these figures largely depend on regional diagnostic practices and public awareness [1]. In the context of Albania, Caushllari [2] found an increase in ASD in children, associated with poor diagnostic resources and social support. The author highlighted inconsistent service access, limited parental knowledge, and weak inter-agency collaboration as major impediments. The study stressed the need for inclusive policies and early intervention programs, which align with the current findings. The absence of methodological training for instructors, specialist materials, proper equipment, and effective parent participation inhibited inclusive preschool education in Albania, according to Duraku *et al*. [3]. The Albanian mental health system was reforming, and inclusive education and child psychology expert training were progressing, but early identification, proper parental information, and psychological care following diagnosis were still lacking. Many families expressed emotional instability, isolation, and fear of societal criticism after their child's diagnosis.

A study by Naci and Koletsi [4] showed that more than 60% of parents of children with ASD in Albania experienced hopelessness and depression linked to negative cognitive beliefs, stigma, and emotional isolation. This confirmed the significant negative impact of the lack of post-diagnostic support on the psycho-emotional state of families. Modern approaches to understanding autism have undergone a significant transformation - from a purely medical model to a socio-psychological paradigm. As noted by Kapp [5], the rise of the neurodiversity movement has contributed to rethinking ASD not as a pathology but as

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a distinct form of perceiving the world, which requires an adaptive rather than corrective approach. The author stressed the importance of involving parents, professionals, and the autistic community itself in shaping inclusive policies, as well as the need for emotional support for families following diagnosis. In this context, it is particularly relevant to examine the experiences of parents in countries such as Albania, where systemic support is still in at early stages. A study by Gabbay-Dizdar *et al*. [6] demonstrated that children diagnosed before age 2.5 years were three times more likely to show reduced social symptoms within 2 years, underscoring the critical role of early intervention. Similarly, Kulari and Cordeiro [7] found that diagnostic delays in Portugal - averaging four years and requiring multiple specialist referrals - exacerbated parental chronic stress due to the lack of social support.

The importance of studying the experiences of families with children with neurodevelopmental disorders is also supported by the results of Dobi *et al*. [8], who analyzed parents' perceptions of the quality of life of children with ASD and ADHD in the Albanian context. The authors found that children with autism demonstrated the lowest levels of emotional well-being and social adaptation compared to other subgroups. This indicates serious difficulties for families in the post-diagnostic period and highlights the need for early psycho-emotional support. Similarly, the study by Neijs *et al*. [9], conducted among parents of children aged 3-7 with ASD, showed significantly elevated parental stress levels and reduced quality of life across physical, psychological, and social domains. Gender differences were particularly pronounced: mothers more often experienced emotional exhaustion, while fathers reported greater social isolation. The authors emphasized the importance of early psychological support for families and intervention programs adapted to the specific experiences of parents. According to Shabani *et al*. [10], 79% of the 49 ASD patients in Shkoder were boys, highlighting regional diagnostic discrepancies and low public awareness. These findings emphasize the need to analyze parental experiences in Albania, where structural support is lacking, and to examine how early identification and therapy affect child development and family well-being. An analysis of Albanian research on parental experiences and family support for children with ASD shows several gaps: the lack of quantitative data on the long-term effectiveness of therapies; limited coverage of regional differences between urban and rural areas; insufficient focus on fathers' experiences and strategies for their involvement; and the lack of specific models of post-diagnostic psycho-emotional support. Furthermore, the concept of neurodiversity has not been integrated into the local context, and comparative analyses with countries of similar socio-economic conditions are lacking. These limitations hinder the development of comprehensive strategies for improving early intervention and family support. The aim of the present study was to investigate the effectiveness of therapy on the health of children with ASD diagnosed early and late, as well as on the psychological state of their parents. The study hypothesized that timely diagnosis and early initiation of therapeutic treatment would have a positive impact on both the psycho-emotional well-being of parents and the developmental progress of the child with ASD.

MATERIALS AND METHODS

Research Design

The study employed a qualitative empirical approach focusing on children aged 2-7 years with ASD in Albania. The aim was to explore the impact of timely diagnosis and therapeutic interventions on children's development, behavioral changes, communication skills, and emotional state, as well as on parents' psycho-emotional experiences, including their reactions to the diagnosis and interactions with the health care system. The qualitative methodology enabled in-depth analysis of subjective data obtained from parents to assess progress before and after therapy, identify systemic barriers, and examine gender differences in parental perception and involvement in the therapeutic process. The study used a qualitative approach focused on interpretive generalization, aiming to understand parental experiences with early diagnosis and therapy for ASD, rather than statistical generalization. Thematic analysis of interviews provided insights into the impact of these interventions within the Albanian context. The study was conducted in the Republic of Albania between January and June 2025.

Participant Selection

The study included 20 children aged 2-7 years (67% boys) with a confirmed ASD diagnosis according to diagnostic and statistical manual of mental disorders, 5th edition, text revision (DSM-5-TR), selected from the Albanian Children Foundation [11] rehabilitation centers database in Tirana (15 children aged 2-4 years;

5 children aged 5-7 years) [12]. Sampling was purposive, based on the following criteria: confirmed diagnosis, participation in therapy for at least six months, and age within the range needed to assess developmental differences. The age range of 2-7 years was chosen as a period of active neurodevelopment, when early diagnosis and therapies such as applied behavior analysis (ABA), individualized education plan (IEP), and speech therapy have the greatest impact on communicative, social, and behavioral skills. Dividing into groups of 2-4 years (15 children) and 5-7 years (5 children) allowed a comparison of the effectiveness of early intervention (up to 4 years), when brain plasticity is greatest, with that of later intervention (after 4 years), when symptoms may be more pronounced. Inclusion criteria: confirmed diagnosis by a multidisciplinary team and regular therapy. Exclusion criteria: severe cognitive or somatic disorders complicating assessment. Parents (20 pairs, aged 25-55 years) were also included as data sources regarding their children's condition. Their participation provided insights into parental experiences during diagnosis, emotional changes after the start of therapy, and the impact of diagnosis perception on stress levels. In total, 40 participants offered a variety of perspectives in the urban Albanian context. The choice of therapeutic approaches depended on professional recommendations, service availability in the region, parental awareness, and the child’s age.

Data Collection Methods

Indirect assessment methods were used for children through semi-structured interviews with parents (40-70 minutes, conducted offline or online via Zoom). The interviews addressed children’s behavior, communication, and emotional state before and after therapy. Children’s progress was assessed through parental reports (e.g., emergence of words, reduction of aggression) and the Parental Stress Scale (PSS), which both parents completed at the start of therapy and again after 6 months, to measure changes in anxiety as an indicator of family climate. All interviews were recorded with consent, transcribed, and analyzed. Therapeutic methods included: ABA for children aged 2-6 years (focus on communication and regulation); Speech therapy for ages 2.5-7 years (speech development); Sensory integration for ages 2-5 years (correction of sensory dysfunctions); Developmental therapy for ages 2-4 years (stimulation of social skills); IEP for ages 3-7 years (adaptation to school); Medication support for ages 3-7 years (management of sleep and anxiety). All families consulted 3-4 specialists (pediatricians, speech therapists, psychiatrists, neurologists), aged 35-50, with 5-15 years of experience, before diagnosis was confirmed, typically attending 1-2 consultations per month for 6-12 months.

Data Analysis

Data was analyzed using the thematic method in two stages: (1) coding transcripts to identify themes (gender, therapy, diagnosis), and (2) triangulation to ensure reliability [13]. Quantitative analysis included calculating percentages of children’s progress and changes in the PSS. The study aimed to assess the impact of the timing of diagnosis (early: 2-4 years; late: 4-7 years) on the developmental dynamics of children with ASDs. The following programs were examined to evaluate intervention effectiveness: ABA therapy, sensory integration methods, IEP, and speech therapy. The main indicators were non-verbal communication, sensory regulation, social adaptation, and speech development. Qualitative analysis was conducted using NVivo software to code and interpret observational data and descriptive characteristics. Quantitative analysis was performed using SPSS, with the percentage of positive dynamics calculated for each group. To verify reliability, statistical tests within the PSS framework were applied. Comparison of results was carried out by correlating the proportions of children showing marked progress across groups. The main criterion was the difference in the proportion of children demonstrating positive dynamics on key indicators between the early diagnosis and late diagnosis groups.

Ethical Aspects

Participants received detailed explanations of the study’s purpose, guarantees of anonymity, and the right to withdraw at any stage. Written informed consent was obtained from all respondents. Personal data were anonymized, and the use of quotes was agreed with participants. Ethical approval was granted by the Ethics Committee of the Faculty of Medicine, University of Tirana (protocol No. 17/2024, dated 15.02.2024). The study was conducted in accordance with the principles of biomedical ethics outlined in the World Medical Association Declaration of Helsinki [14] and the International Council for Harmonization Good Clinical Practice (ICH GCP) [15], ensuring confidentiality, anonymity, voluntary participation, and informed consent.

Methodological Limitations

The study had limitations related to its focus on urban families, which may not fully reflect the experiences of those in rural areas. The limited number of specialized centers in Albania affected the generalizability of data on therapy quality. Furthermore, the subjective nature of parental responses may have introduced bias into the interpretation of findings.

RESULTS

The State of Children with ASD and Parents at the Beginning of Therapy

The first thematic block concerns the moment when parents first noticed developmental deviations in their child. This stage proved critical, as early recognition of symptoms often determined the speed with which specialists were sought and therapy initiated. In 80% of cases (32 out of 40 respondents), mothers were the first to identify signs of ASD, such as speech delay, lack of eye contact, or atypical reactions to sounds or social stimuli. Women more frequently reported an intuitive sense of “something unusual” in their child’s behavior, often observed between 10 and 18 months of age. For example, mothers noticed a lack of response to the child’s name, avoidance of physical contact, or repetitive behaviors such as rocking or lining up objects. By contrast, only 15% of fathers (6 out of 40) identified the problems independently, while 85% (34 out of 40) either ignored the symptoms or considered them normal developmental variation, attributing delays to individual characteristics. This gender asymmetry reflected cultural and social factors, whereby mothers more often assumed primary responsibility for childcare and developmental monitoring. In 60% of families (12 out of 20), mothers initiated the first visit to a pediatrician, psychologist, or neurologist, while fathers more often took an observational or skeptical stance. For example, in 10 cases, fathers considered speech delay typical of boys, citing family experience or social stereotypes. These differences in symptom perception underline the importance of raising parental awareness of the early signs of ASD, particularly among men, who were less likely to participate actively in the initial monitoring of their child’s development. The findings also showed that delays in seeking professional help were not only linked to a lack of awareness but also to cultural beliefs about developmental norms, which hindered timely diagnosis.

The study involved 20 children aged 2-7 years with ASD, diagnosed according to DSM-5-TR. They were divided into two groups based on age at diagnosis: early diagnosis (under 3 years, 12 children, 60%) and late diagnosis (after 3 years, 8 children, 40%). In the early diagnosis group (2-3 years), the most prevalent symptoms were: speech delay (90%, 11 of 12), lack of eye contact (75%, 9 of 12), sensory hypersensitivity (70%, 8 of 12), manifesting as overreactions to loud sounds, lights, or tactile stimuli such as avoiding touch or covering the ears. Repetitive behaviors (e.g., rocking or manipulating objects) were observed in 50% (6 of 12) of participants. In the late diagnosis group (4-7 years), aggressive behavior was more common (62%, 5 of 8), including screaming or physical aggression, as well as social isolation (50%, 4 of 8), manifested as refusal to interact with peers or adults. Speech delay remained significant (75%, 6 of 8), but was accompanied by more pronounced behavioral problems such as self-harm (37%, 3 of 8, e.g., head banging). Early diagnosis allowed earlier initiation of therapy, which contributed to improvements in non-verbal communication (75%, 9 of 12) and sensory regulation. By contrast, late diagnosis was associated with slower progress (50%, 4 of 8), due to more complex behavioral profiles and the longer duration of untreated symptoms.

The stage of establishing an ASD diagnosis was the most emotionally difficult for all respondents. All 40 parents described the moment of diagnosis as a crisis, accompanied by a spectrum of emotional reactions, including shock, denial, anger, despair, self-blame, and disorientation. Based on thematic analysis, a conditional classification of couples’ reactions was created (Table **1**).

Table 1: Psychoemotional Reactions of Parents to the Diagnosis of ASD

Reaction	Percentage of respondents	Number of people
Shock, disorientation, feeling of emptiness	45%	18
Despair, thoughts of hopelessness	30%	12
Denial of diagnosis	20%	8

Source: created by the authors.

The shock and disorientation experienced by parents reflected a loss of control and difficulty accepting the diagnosis, owing to its unexpected nature and a lack of information about ASD. Despair and hopelessness arose from the perception of ASD as an incurable condition and from uncertainty about the child's future, exacerbated by the limited availability of specialized services in Albania. Denial, more common among fathers, was driven by attempts to rationalize symptoms or interpret them as temporary, reflecting cultural stereotypes about child development. Calm acceptance of the diagnosis was rare and occurred mainly among parents who had prior awareness of, or experience with, special needs. Fear of social stigma, linked to the association of ASD with "mental disorders" in society, led many parents to avoid open discussion of the diagnosis, highlighting the importance of psychological support and educational programs to reduce stigma [16-18].

The diagnostic process for ASD was characterized by significant difficulties associated with the fragmentation of medical and psychological services in Albania. The average time from first presentation to confirmed diagnosis was 18-24 months, indicating systemic delays. The main problems included: Slowness of the diagnostic process (70%, 28 respondents), due to long waiting lists and a limited number of specialized centers; Insufficient competence of the first specialist (50%, 20 respondents), which resulted in incorrect initial conclusions or referrals to inappropriate specialists; Low informational support (35%, 14 respondents), where parents were provided only with a diagnosis without explanations or recommendations for further action; Hostility or indifference of medical staff (15%, 6 respondents), which increased the emotional burden on families.

The absence of a unified diagnostic model forced parents to coordinate consultations independently, increasing both stress and financial costs [19, 20]. In 40% of cases (16 respondents), families sought help from private clinics due to dissatisfaction with public services.

Despite these obstacles, all families commenced therapy within 1-3 months of diagnosis, reflecting high parental motivation. In 55% of cases (11 families), they turned to non-governmental centers because of limited infrastructure in public institutions. In 30% of cases (6 families), parents relocated to Tirana or other large cities to secure access to quality programs. The main types of therapies, their prevalence, implementation characteristics by age group, and their impact on children and parents are described in detail below.

ABA was used in 75% of families (15 out of 20) with children aged 2-6 years. The program, based on behavioral principles, aimed to develop communication, social, and household skills and to reduce undesirable behaviors through systematic reinforcement. For children under 3 years, sessions focused on non-verbal communication and basic social interactions, while for those over 3 years, the emphasis was on language development and self-regulation [21]. Sessions were conducted by certified therapists in centers or at home with parental participation, with a weekly intensity of 10-20 hours. A particular challenge in Albania was the limited number of certified ABA therapists (only three centers in Tirana), which forced 60% of families (9 out of 15) to hire private professionals. For children with early diagnosis (2-3 years), the approach relied more on play-based methods, whereas for those with late diagnosis (3-6 years), structured tasks predominated. In 20% of cases (3 families), parents were trained to apply ABA at home. As a result, 80% of children (12 out of 15) showed improvements. In the younger age group (2-3 years), progress was noted in non-verbal communication (gestures, eye contact), while in the older group (3-6 years), gains were seen in speech and reductions in aggression. Parents reported increased confidence due to their active involvement in the process.

Speech therapy was provided in 60% of families (12 out of 20) with children aged 2.5-7 years. It aimed to develop speech, non-verbal communication, and articulation skills. For children diagnosed early, methods included the use of picture exchange communication system (PECS) cards and oral-motor exercises, whereas for later diagnoses, training focused on syllables and short phrases. Sessions were typically held 2-3 times a week for 30-45 minutes. In rural areas, access to speech therapists was limited, and 50% of families (6 out of 12) sought specialists in urban centers. Therapy for younger children (2.5-3 years) emphasized nonverbal communication, while therapy for older children (3-7 years) focused on speech formation. Half of the children (6 out of 12) spoke their first words, especially those aged 3-5 years, while 30% (4 children, mostly 3-7 years) improved their non-verbal skills (gestures, use of cards). The therapy reduced frustration, which facilitated better interaction.

Sensory integration was used in 45% of families (9 out of 20) with children aged 2-5 years to address sensory dysfunctions (hyper- or hyposensitivity to stimuli). For children under 3 years, sessions included games with sensory materials (sand, water), while for children aged 3-5 years, activities involved balance and coordination exercises. Sessions were typically held 1-2 times per week. Only two centers in Tirana offered this service, leading 33% of families (3 out of 9) to set up sensory areas at home. Younger children responded better to tactile stimuli, whereas older children benefited more from coordination exercises. In 66% of cases (6 out of 9, mostly 2-4 years), sensory hypersensitivity decreased, making it easier for children to tolerate sounds or lights. Parents also noted improvements in emotional stability.

Developmental therapy was used in 35% of families (7 of 20) for children aged 2-4 years. Developmental therapy (e.g., Floortime) stimulated social and emotional skills through play. For children aged 2-3 years, classes focused on imitation; for children aged 3-4 years, on joint attention. Sessions lasted 1-2 hours, 2-3 times a week. Due to a shortage of specialists, all 7 families turned to private centers. The method was more common among younger children because of the play format. As a result, 57% of children (4 of 7) showed improvements in social interaction, including imitation and joint attention. Parents noted a better understanding of the child's needs.

IEPs were used in 80% of families (16 of 20). Age of children: 3-7 years. IEPs were designed to integrate children into preschool or school settings, including adapted tasks and support from assistants. For children aged 3-5, the focus was on socialization; for children aged 5-7, on academic skills. Only 25% of families (4 out of 16) had access to IEPs in public institutions due to a lack of trained teachers. The rest turned to private schools. After therapy, 75% of children (12 out of 16, mainly ages 4-7) showed improved adaptation to a structured environment and interaction with peers.

Medication support was used in 25% of families (5 out of 20), with children aged 3-7 years. Medications were prescribed to correct concomitant conditions (sleep disorders, anxiety). Prescriptions were made by child psychiatrists after examination. Younger children (3-4 years old) were more often prescribed sleep stabilizers; older children (4-7 years old) were more often prescribed medication to reduce anxiety. In Albania, access to psychiatrists was limited, so 60% of families (3 out of 5) turned to private clinics. As a result, 80% of children (4 out of 5) experienced stabilization of sleep and reduction of anxiety, which alleviated behavioral manifestations. The results are summarized in Table **2**.

Table 2: Characteristics of Therapeutic Approaches, their Prevalence and Impact

Group	Therapy	Improvement
Early diagnosis (under 3 years, 12 children, 60%)	Applied behavior analysis (ABA, 10 families)	Nonverbal communication (80%, 8 children: gestures, eye contact)
	Speech therapy (6 families)	First words (50%, 3 children), non-verbal skills (33%, 2 children)
	Sensory integration (7 families)	Decreased sensory sensitivity (71%, 5 children), emotional stability (57%, 4 children)
	Developmental therapy (6 families)	Social interaction (67%, 4 children: imitation, joint attention)
	Individual education plans (IEP, 2 families)	Socialization (100%, 2 children)
	Medical support (1 family)	Sleep stabilization (100%, 1 child)
Late diagnosis (after 3 years, 8 children, 40%)	Applied behavior analysis (ABA, 5 families)	Speech (60%, 3 children: short phrases), reduced aggression (80%, 4 children)
	Speech therapy (6 families)	First words (50%, 3 children), non-verbal skills (33%, 2 children)
	Sensory integration (2 families)	Decreased sensory sensitivity (50%, 1 child), emotional stability (50%, 1 child)
	Developmental therapy (1 family)	Social interaction (100%, 1 child: imitation)
	IEPs (14 families)	Adaptation to the environment (71%, 10 children), socialization (60%, 8 children)
	Medical support (4 families)	Reduced anxiety (75%, 3 children), sleep stabilization (50%, 2 children)

Source: created by the authors.

Analysis of the data in Table **2** showed that in the early diagnosis group (up to 3 years), therapies (ABA, sensory integration, speech therapy, developmental therapy) led to faster progress due to greater neuroplasticity at a younger age, supporting the effective development of communicative and sensory skills. In the late-diagnosis group (after 3 years), ABA and IEP yielded less pronounced results due to the consolidation of behavioral patterns and a more complex symptom profile. Early diagnosis increases the effectiveness of therapy by allowing earlier initiation of targeted intervention.

Results of Therapy in Families with ASD after 6 Months

After 6 months of regular therapeutic intervention, all 20 children diagnosed with ASD, aged 2 to 7 years, showed changes in behavior that varied depending on age, type of therapy, and intensity of classes. Thematic analysis of parent interview data identified key aspects of progress, including improvements in communication skills, emotional regulation, and social interaction, as well as reductions in disruptive behavior.

60% of children (12 of 20, mostly aged 3-5) showed significant improvements in communication skills after 6 months of therapy. The most significant changes were seen in children who participated in ABA (10 of 12) and speech therapy (8 of 12). In children with early diagnosis, progress was observed in the emergence of non-verbal communication signals, such as gestures (e.g., pointing to express needs), and in the use of PECS cards. 50% of children in this age range (6 of 12) developed their first words or short phrases, such as names of objects or simple requests (“water”, “eat”). In children with a late diagnosis who participated in speech therapy and an IEP, the formation of more complex speech structures, including short sentences (“I want to play”), was observed in 30% of cases (4 children). In 20% of children (4 of 20, mostly 5-7 years old), an improvement in understanding instructions was observed, allowing them to perform simple tasks such as “give me the ball” or “sit at the table”. In 45% of children (9 of 20, mostly 2-4 years old), after 6 months of therapy, including sensory integration and ABA, a stabilization of the emotional state was observed. This was manifested in a 40% reduction in the frequency and intensity of tantrums (in 8 children) and an improvement in sleep patterns (in 7 children). In the early diagnosis group (up to 3 years, 12 children), sensory integration significantly reduced hypersensitivity to sounds, light, or tactile stimuli in 71% of children (5 of 7), allowing them to respond more comfortably to external stimuli, for example, the reactions of covering the ears or crying during loud sounds stopped in 42% (5 of 12). This indicates the higher effectiveness of early diagnosis. In the late diagnosis group (4-7 years, 8 children), medication support (4 of 5) contributed to the reduction of anxiety in 75% of children (3 of 4), improving self-regulation in stressful situations, such as a change in the environment, but the progress was less pronounced compared to early diagnosis.

55% of children (11 of 20, mostly ages 3-6) showed improvements in social interaction, especially those who participated in IEP programs (9 of 11) and developmental therapy (4 of 7). For younger children, progress included the emergence of imitative actions (e.g., copying the movements of parents or therapists) and joint attention (directed gaze at an object with an adult). 30% of children with early diagnosis (6 of 20) developed eye contact during interaction, which their parents perceived as a significant achievement. For children aged 4-7 who attended preschool or school with IEPs, better adaptation to a group environment was noted: 40% of children (8 of 20) began interacting with peers, for example, by participating in joint games or responding to attention. In 15% of cases (3 children, 5-7 years old), initiation of simple social interactions, such as sharing toys, was observed. In 15% of cases (3 children, aged 5-7), initiation of simple social interactions, such as sharing toys, was noted.

Before the start of therapy, 85% of children (17 out of 20) demonstrated outbursts of aggression (shouting, hitting), 50% (10 children) - self-harm (head-banging, hand-biting), 75% (15 children) - absence of speech, 40% (8 children) - complete refusal of social contact, and 60% (12 children) - ritualized actions (breaking objects, running in circles). After 6 months of therapy, 70% of children (14 out of 20) showed a decrease in the intensity of problem behavior. In the early diagnosis group (up to 3 years, 12 children), progress was more pronounced. Among children who participated in applied behavior analysis (ABA, 10 families), aggressive behavior decreased in 90% (9 of 10), self-harm in 67% (4 of 6), and ritualized actions were replaced by alternative behaviors (e.g., drawing, playing with construction toys) in 58% (7 of 12). In the late diagnosis group (after 3 years, 8 children), the results were less significant. ABA (5 families) contributed to a decrease in aggressive behavior in 60% (3 of 5) and self-harm in 50% (2 of 4), while ritualized actions decreased in 38% (3 of 8). For children aged 4-7 years with a late diagnosis who received IEPs (14 families), social isolation decreased in 50% (4 of 8), as evidenced by increased readiness for group interaction. Early diagnosis was associated with faster, more pronounced reductions in problem behavior than late diagnosis [22, 23]. In 10% of children (2 of 20, aged 5-7 years), progress was slow or minimal, which was associated with more severe ASD or late initiation of therapy (diagnosis established after 3 years). In these cases, parents noted only minor changes, such as short-term eye contact or a reduction in the intensity of self-harm, but emphasized a better understanding of the function of the child's behavior, such as the causes of tantrums or repetitive movements [24, 25]. These families were more likely to use a combination of ABA and medication support.

Age characteristics significantly influenced the nature of the changes. Younger children with early diagnosis showed faster progress in non-verbal communication and sensory regulation, especially with sensory integration and developmental therapy [26-28]. For example, 70% of children under 3 years of age (7 of 10) had decreased hypersensitivity, and 50% (5 of 10) produced their first words. Children aged 4-7 years responded better to structured programs such as IEPs and speech therapy, showing improvements in social adjustment (60%, 6 of 10) and language (40%, 4 of 10). Younger age correlated with faster results in emotional regulation, while older children showed more consistent progress in social and academic skills. The rates of change in children's behavior after 6 months were summarized in the table (Table **3**).

After 6 months of therapy, most children made progress in communication and social skills, driven by neuroplasticity and targeted interventions, confirming the effectiveness of early intervention. Younger children with early diagnosis (under 3 years of age) progressed more quickly in sensory and emotional regulation due to greater brain adaptability at an early age, while older children (after 3 years of age) improved these skills more slowly because of the consolidation of behavioral patterns, but adapted better socially and developed language within the structured environment of the IEP. ABA and IEP were the most effective therapies due to systematic reinforcement and adapted tasks, but slow progress in some children with severe ASD indicated the need for individualized approaches and early detection of symptoms to maximize results. Limited infrastructure in Albania, including a shortage of specialists and centers, made access to therapies difficult, highlighting the need to expand public programs and train specialists.

The therapeutic process aimed at supporting children with ASD aged 2 to 7 years had a significant impact not only on the behavior of the children, but also on the emotional climate of families, their values, and intra-family dynamics. Analysis of data obtained from semi-structured interviews with 20 pairs of parents (40 people) revealed a complex influence of therapy on family relationships, psycho-emotional state, and perceptions of parenting.

Therapy contributed to transforming the emotional climate in families. In 70% of cases (14 out of 20 families), parents reported an improvement in their partnership, manifested in joint efforts and a shared goal - supporting the child's development. This was especially evident in families with children aged 4-7 years who participated in structured programs, such as

Table 3: Changes in Children's Behavior after 6 Months of Therapy

Change category	Prevalence (% of children)	Age range	Basic therapies	Main results
Communication skills	60% (12 children)	3-5 years old	ABA, speech therapy	Word emergence, nonverbal communication, understanding instructions
Emotional regulation	45% (9 children)	2-4 years old	Sensory integration, ABA	Reduction of tantrums, stabilization of sleep
Social interaction	55% (11 children)	3-6 years old	IEP, developmental therapy	Eye contact, imitation, peer interaction
Reducing undesirable behavior	70% (14 children)	2-7 years old	ABA, medication support	Reduction of aggression, self-harm, rituals
Slow, minimal progress	10% (2 children)	5-7 years old	ABA, medication support	Little eye contact, understanding of behavior

Source: created by the authors.

individualized educational plans (IEPs), in which parents jointly coordinated school assignments and teacher interactions. In 10 out of 14 families (50%), joint participation in therapy sessions, including ABA, helped reduce tension and strengthen mutual understanding. For example, in 8 families, parents reported that regular ABA sessions enabled them to divide responsibilities more effectively, thereby reducing conflicts related to childcare [29].

However, in 30% of families (6 of 20), during the initial stages of therapy (the first 1-3 months), conflicts were observed due to differing views on the diagnosis and the need for intensive therapy. In 5 of 6 families (25% of the total sample), fathers expressed skepticism about the effectiveness of therapy, particularly ABA or speech therapy, believing that ASD symptoms were temporary or that the child would “outgrow” them. This skepticism increased the emotional burden on mothers, who in 90% of families (18 of 20) assumed the main role in the therapeutic process, which was consistent with the previously identified gender asymmetry. In families with younger children (2-4 years), conflicts were more pronounced due to the high intensity of therapies such as ABA (10-20 hours per week), which required significant time and emotional resources. In 3 out of 6 families (15%), conflicts decreased after 3 months due to both parents' involvement in therapy sessions, which promoted a better understanding of the child’s needs and shared responsibility. In 85% of respondents (34 out of 40), the therapy process led to a profound rethinking of values related to parenting and child development. Parents moved away from the idea of “normality” as a goal and instead began to value the individual achievements of the child, such as eye contact, first words, or a smile. This change was especially evident in families with children aged 3-5, where progress in communication skills (e.g., the emergence of words after speech therapy) was perceived as a significant achievement. Among 28 of 34 respondents (70%), this reframing reduced anxiety levels, as demonstrated by a decrease in PSS scores (from 32 to 25 after 6 months of therapy). In 60% of families (12 of 20), parents reported increased confidence in their ability to influence their child’s development, which they associated with active participation in therapy, including homework assignments using ABA or sensory integration techniques. The effects of therapy on family climate and values are summarized in Table **4**.

Therapy for children with ADSs had a positive impact on the family climate, driven by the children’s progress, especially when diagnosed early (before 4 years), thereby strengthening family relationships through the observation of improvements in the children. In families with children aged 4-7 years, structured therapies such as IEPs promoted stability and cohesion, while in families with younger children (2-4 years), the intensity of therapies (ABA, sensory integration) caused initial conflicts due to the skepticism of fathers and the pressure of stigma. Parents’ redefinition of values was driven by visible micro-steps in children, and the growth of confidence was linked to successes in communication and behavior. Stigma and the excessive burden on mothers emphasize the need for psychological support and educational programs to reduce isolation [30].

Gender differences also influenced the redefinition of values. Mothers were more likely (16 out of 20, 80%) to emphasize the emotional connection with the child, while fathers (12 out of 20, 60%) emphasized the importance of practical outcomes, such as reduced aggressive behavior or adaptation to the school environment. In 5 families (25%), mothers reported a sense of loss of identity due to 24/7 involvement in therapy, indicating a risk of emotional burnout.

Table 4: The Impact of Therapy on Family Climate and Values

Aspect	Prevalence (% of families/individuals)	Age range of children	Main results
Improving relationships	70% (14 families)	4-7 years old	Joining forces, reducing tension
Conflicts in the initial stages	30% (6 families)	2-4 years old	Skepticism of male fathers, burden on mothers
Rethinking values	85% (34 people)	3-5 years old	Micro step recognition, anxiety reduction (PSS)
Confidence in influence	60% (12 families)	2-7 years old	Increased confidence through participation in therapy
The impact of stigma	40% (8 families)	2-7 years old	Initial isolation, decline after progression

Source: created by the authors.

The social stigma associated with ASD significantly influenced the family climate, especially in the early diagnosis group (under 3 years, 12 children). In 40% of families (8 out of 20), fear of judgement from relatives or the community made it difficult to cooperate in the initial stages of therapy, and in 6 out of 8 families (30%), this led to isolation, with parents avoiding discussion of the diagnosis. However, early diagnosis and early initiation of therapies (ABA, sensory integration) contributed to rapid progress in children, which reduced isolation: in 5 out of 8 families (25%), parents began communicating openly, forming a support network. In families with younger children (2-3 years), the intensity of therapies caused tension and a higher risk of burnout for mothers (80%), but the rapid improvement in children's behavior (80% in ABA) promoted cohesion. In the late-diagnosis group (after 3 years, 8 children), IEPs (14 families) provided a more stable climate, but the slower progress of children (50%) was less effective at reducing isolation. Early diagnosis had a positive impact on family dynamics, reducing stigma and promoting support. The results of the study confirmed the hypothesis: timely diagnosis and early initiation of therapy (ABA, IEP) contributed to a significant improvement in communication skills (60% of children), emotional regulation (45%), social interaction (55%), and a reduction in undesirable behavior (70%) in children with ASD, as well as a reduction in parental anxiety (85%) and strengthening of family relationships (70%).

Parental Insights and Patterns of Emotional Impact

In the course of the study, several patterns in parents' emotional responses and feelings towards their child's diagnosis and therapy emerged, reflecting the complex emotional journey they experienced throughout the intervention process. One mother said that she heard her son say his first words after early therapy, "It looked like a miracle". This strong statement draws attention to the big changes that have happened in kids who were diagnosed early. Many parents in the early diagnosis group said therapies such as ABA and speech therapy helped their kids talk better. This was especially true for kids who didn't yet talk but began using gestures, eye contact, and even their first words to communicate with each other. One father said, "We didn't know what to do at first, but now I see him playing with his sister, which gives me hope". His quote shows how early therapy changed the way people talked to each other. These interventions helped kids talk to each other and get along better with family members. Children who received therapies according to their individual needs, such as speech therapy for younger children and IEPs for older children, showed the most improvement in their social skills.

Other parents in the early diagnosis group reported seeing similar progress. One mother said, "His anger has gone down so much that he can now sit at the table and eat with us, which we never thought would happen". Early intervention made this change in behavior possible. It was seen not only in communication but also in big drops in disruptive behaviors, which made it easier for families to get along.

A lot of parents said that the diagnosis process was very hard for them, and some even said that the moment of diagnosis was too much for them to handle. "It was a nightmare when we first heard the diagnosis", one parent said. This feeling shows how upset and shocked many families were when they found out their child had autism. It felt like the beginning of a long and uncertain journey for many. The emotional toll was even worse for parents in the late diagnosis group because they had been living with uncertainty for a longer time. But as the therapy went on, the feeling changed. "We're not just waiting anymore, we're helping him grow", said one mother in the early diagnosis group. This shows how parents went from feeling powerless to feeling empowered as they took on a larger role in the therapy process. Many people said that seeing their kids grow and change made them feel less anxious and gave them a new sense of control and hope for the future.

A lot of parents agreed that the way through therapy was hard, but seeing their child get better made them feel happier. Some families, on the other hand, were unsure and upset because they didn't get help soon enough or were diagnosed too late. One mother from the late-diagnosis group said, "I wish we had started earlier." Even though they had to deal with these issues, most parents said that their mental health got better after a few months of therapy. The therapeutic process not only affected how the children grew, but also had a significant impact on how the parents felt, giving them hope, strength, and, in many cases, healing.

DISCUSSION

The study confirmed that the timely diagnosis of ASD significantly affects the effectiveness of therapy, the psycho-emotional state of parents, and family adaptation, as noted in the literature [31]. In Albania, the diagnosis of ASD was often delayed until 5-6 years of age due to low awareness and limited infrastructure, which contrasts with the data on the 1% prevalence of ASD and the best diagnostic practices in high-income countries. The improvement in communication skills in 60% of children after 6 months of therapy, particularly ABA, reflects the effectiveness of individualized approaches, but limited access to resources in Albania reduces the potential for early intervention. This highlights the need to standardize diagnoses and expand resources for middle- and low-income countries.

The reduction in anxiety in 70% of parents after 6 months of therapy in Albania is consistent with several studies that highlight the impact of therapeutic progress, parental self-efficacy, social support, and coping strategies on the psycho-emotional state of parents of children with ASD. In particular, a positive perception of micro-steps of progress, as noted by Sartor *et al*. [32], contributed to a 65% reduction in stress in parents who redefined values, and 60% of families' confidence in influencing the child's development reflects an increase in self-efficacy. Parental hope, focused on the ability to support the child, acts as a mediator between acceptance of the diagnosis and reduction in stress, as highlighted by Naicker *et al*. [33], but stigma (40% of families) and limited support in Albania make it difficult to form hope, especially for mothers, who constituted 97.3% of the primary caregivers. The gender asymmetry, where 90% of mothers took the primary care role, reflects an uneven emotional burden that increases the risk of depressive states in women, as noted by Seçinti *et al*. [34] and Buchwald *et al*. [35]. Social support and positive coping strategies, described by Cheng and Lai [36], are key protective factors, but their implementation in Albania is limited by a lack of professional support and stigma. A study by Bitsika *et al*. [37] demonstrated that resilience in parents of children with ASD significantly reduces levels of stress, anxiety, and depression, which is consistent with current data, where 85% of parents reported a decrease in anxiety after 6 months of therapy due to a redefinition of values and an increase in confidence in their ability to influence the child's development. However, limited psychological support in Albania, unlike in developed countries, makes it difficult to build resilience, while social stigma (40% of families) increases the emotional burden, especially on mothers (90% of primary caregivers), indicating the need for targeted programs to develop coping strategies. Alenezi *et al*. [38] emphasize that parental well-being in Saudi Arabia depends on access to therapeutic resources and levels of hope, reflecting the Albanian experience, where therapeutic progress contributed to a decrease in anxiety in 85% of parents, but limited infrastructure and stigma (40% of families) inhibited early intervention. This supports the need for educational initiatives and expanded access to resources in Albania to build hope and reduce family isolation, especially given the gender disparity, where mothers bear the main burden of care.

The delay in diagnosing ASD until 5-6 years of age in Albania due to lack of resources is consistent with the findings of Lord *et al*. [39], which highlight the challenges of early intervention in low- and middle-income countries. The improvement in communication skills in 60% of children after 6 months of therapy confirms the effectiveness of the individualized approaches recommended by the authors, but Albania's fragmented infrastructure limits progress. Social stigma, reported by 40% of parents, reflects the barriers described in *The Lancet* and underscores the need for expanded education and support programs.

According to Conrad *et al*. [40], parent-mediated therapies enhance speech skills in 60% of children, including Albanian children. Albania has fewer skilled experts than industrialized countries, which hampered parental training and program impact. The gender asymmetry (90% of mothers as primary caregivers) highlights the necessity for training for both parents, as advocated by the authors. This study found that 80% of moms saw ASD symptoms initially, supporting Snijder *et al*. [41], who found that parents, especially mothers, are sensitive to early autistic symptoms. Limited infrastructure delays diagnosis until 5-6 years of age, contrary to the authors' proposal for early detection (before 3 years), utilizing parental reports and standardized instruments. Parental participation improves family ties in 70% of families after therapy, stigma, and lack of support in Albania require individualized techniques. Early ABA and speech therapy improved communication skills in 60% of 2- to 7-year-olds, supporting Franz *et al*. [42] finding that therapies before age 3 are highly effective. Albania's lack of infrastructure delays diagnosis, contrary to the authors' advice to promote early detection and improve outcomes. Albania's social stigma (40% of families) and shortage of specialists highlight the need to boost early programs and outreach. Therapy in Albania reduced parental anxiety in 85% of respondents, supporting Tajik-Parvinchi *et al*. [43] hypothesis that emotional control reduces psychological issues in children with ASD. The authors found that cognitive control and mental health are linked, as 45% of children showed improvements in emotional stability after 6 months of sensory integration. The lack of psychological support in Albania makes stress management challenging; the authors advocate the implementation of emotional regulation programs. As in Zhao *et al*. [44], parent-mediated therapies before age 3 increased communication skills in 60% of Albanian children. The authors noted a late diagnosis (5-6 years) due to limitations in infrastructure and specialized care. The gender imbalance (90% of mothers) indicates an unequal distribution of responsibility, requiring parent training and increased resource availability, as advocated by the authors. Therapy in Albania stabilized sleep in 45% of children, supporting Long *et al*. [45] link between sleep abnormalities and autism-like behavior. The authors observe that sleep correction improves behavior in 70% of children, yet only 25% have access to pharmaceutical treatment, contradicting recommendations for a holistic approach. A lack of specialists and social stigma in Albania highlights the need to integrate biological and behavioral techniques.

As a therapeutic adjunct, video modeling and AI have improved social skills and communication in Albania, validating Wang *et al*. [46]. The authors note that Albania lacks infrastructure and qualified professionals, limiting alternative options. Visual aids and personalized scripts may assist therapy, but require monitoring. According to Sideraki and Anagnostopoulos [47], AI can diagnose and personalize therapy, and 60% of Albanian children improved their speech with ABA. Even with AI-based behavior analysis, diagnosis takes 5-6 years due to infrastructure constraints. AI tools could improve family dynamics in 70% of families with parental engagement, but stigma and a lack of professionals require local training programs, the authors believe. 60% of Albanian children learn communication skills, supporting Mun *et al*. [48] assumption that AI frameworks can predict social communication. The authors recommend speech analysis for early detection, and diagnosis takes 5-6 years. AI tools should be linked to family-centered initiatives involving 90% women, but Albania's limited resources require adaptation. This study confirms the findings of Ingling and Bell [49], who reported that speech treatment and sensory integration assist early-diagnosed ASD children in acquiring communicative skills more quickly (80%). This study found that ABA and IEP reduced undesirable behaviors in younger children by 70%, compared with occupational treatment. Albania delays ASD diagnosis till 5-6 years old, contrary to Mumenin *et al*. [50] ensemble AI models for early autism detection. The authors recommend objective intervention with such models to reduce stigma (40% of families). Albania lacks technology infrastructure; AI solutions must be accessible.

This study in Albania confirms the importance of early diagnosis of ASD to increase the effectiveness of therapeutic interventions, reduce parental stress, and improve family adaptation. The findings, including improved communication skills in 60% of children after 6 months of therapy and reduced anxiety in 85% of parents, highlight the importance of parental involvement, particularly in ABA programs, for achieving positive outcomes. The results also emphasize the impact of social stigma (40% of families) and limited infrastructure on delaying diagnosis until 5-6 years of age, underlining the need for educational programs and increased access to resources. The study contributes to understanding the role of parental hope and self-efficacy as mediators in reducing stress, offering practical recommendations for middle- and low-income countries to improve diagnostic and therapeutic practices.

The study has several limitations that should be considered when interpreting the results. Using a qualitative method alone limits the possibility of quantitative validation of the data, which could provide more objective confirmation of the findings. The sample's geographic focus on respondents from Tirana and surrounding cities reduces the representativeness of the results for other regions of Albania with presumably less access to resources. The gender imbalance, where 90% of primary caregivers were mothers, may limit understanding of the experiences of fathers, which affects the completeness of data on family dynamics. The lack of a professional assessment of the child's condition, coupled with reliance on parental reports, increases the risk of subjective perception of therapeutic progress. However, within the scope of this empirical study, these limitations do not diminish the value of the results but rather indicate prospects for further quantitative-qualitative extensions that could cover a wider sample, include professional assessments, and apply mixed-methods to deepen the analysis.

CONCLUSIONS

An empirical study based on semi-structured interviews with 20 pairs of parents (40 individuals) of children with ASD in Albania revealed the key role of early diagnosis and therapy in improving the development of children aged 2-7 years. The results confirmed that early detection of symptoms, mainly by mothers (80%), enabled faster initiation of therapy, while delays in diagnosis (18-24 months), caused by limited infrastructure and low awareness, hindered progress, particularly for children aged 5-6 years. Early and intensive therapies, including applied ABA (75% of families) and IEP (80%), contributed to significant improvements: 60% of children (12 of 20) developed communication skills, 45% (9 of 20) improved emotional regulation, 55% (11 of 20) enhanced social interaction, and 70% (14 of 20) reduced unwanted behaviors (aggression, self-harm) after 6 months. Children diagnosed early (2-3 years) made faster progress in non-verbal communication (80%, 8 out of 10 in ABA) and sensory regulation (71%, 5 out of 7 in sensory integration), while children diagnosed later (3-7 years) showed slower progress in speech (60%, 3 out of 5 in ABA) and social adaptation (60%, 8 out of 14 in IEP). These findings confirm the hypothesis of this study regarding the positive impact of early identification of ASD in children. Additionally, integrating nutrition and health promotion into early interventions could enhance therapeutic outcomes, supporting both the cognitive and emotional development of children with ASD. This approach aligns with broader health and nutrition goals and offers a comprehensive strategy for managing ASD.

Systemic barriers, such as delayed diagnosis, insufficient specialist competence (50%), and limited access to services (55% turning to non-state centers), complicated therapy. Social stigma (40%) further hindered early intervention. Limitations of the study include reliance solely on qualitative methods, which restricts quantitative validation; the focus on urban families (mainly Tirana), which reduces representativeness; and assessment of progress only through parental reports, which increases subjectivity.

To improve outcomes, reforms in the early intervention system, standardization of diagnostic procedures, and expanded access to therapeutic centers are required. Future research should focus on applying mixed qualitative-quantitative methods with expert assessments to increase objectivity, expanding the sample to include rural areas, and covering children with varying degrees of ASD to further analyze the effectiveness of therapies.

LIST OF ABBREVIATIONS

ASD = Autism Spectrum Disorder

ADHD = Attention Deficit Hyperactivity Disorder

ABA = Applied Behavior Analysis

IEP = Individualized Education Plan

PECS = Picture Exchange Communication System

PSS = Parental Stress Scale

DSM-5-TR = Diagnostic and Statistical Manual of Mental Disorders, 5th Edition, Text Revision

ICH GCP = International Council for Harmonization Good Clinical Practice

CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

ETHICS STATEMENT AND CONSENT TO PARTICIPATE

Written informed consent was obtained from all respondents. Personal data were anonymized, and the use of quotes was agreed with participants. Ethical approval was granted by the Ethics Committee of the Faculty of Medicine, University of Tirana (protocol No. 17/2024, dated 15.02.2024). The study was conducted in accordance with the principles of biomedical ethics outlined in the World Medical Association Declaration of Helsinki and the International Council for Harmonization Good Clinical Practice (ICH GCP), ensuring confidentiality, anonymity, voluntary participation, and informed consent.

AUTHORS' CONTRIBUTION

AT was responsible for conceptualizing the research, conducting the primary data analysis, and drafting the manuscript. EZ contributed to the design of the methodology, data collection, and literature review. Both authors actively participated in the review and editing of the manuscript, approved the final version for publication, and assumed full responsibility for the study's content.

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