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# Implementation of a Sensory Room in Pediatric Emergency Services for Children with Autism Spectrum Disorder: A Phenomenological Approach

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*Article*

# Implementation of a Sensory Room in Pediatric Emergency Services for Children with Autism Spectrum Disorder: A Phenomenological Approach

**Saray Betancor-Avero [1,*], María-Ángeles Ferrera-Fernández [1,2], Héctor González-de la Torre [2,*], Javier Auyanet-Franchy [1] and Claudio-Alberto Rodríguez-Suárez [1,2]**

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## Highlights

**What are the main findings?**

- Both healthcare professionals and parents recognize the need for a sensory-adapted room in pediatric emergency departments for children with Autism Spectrum Disorder.
- The main barriers identified are lack of professional training, inflexible clinical protocols, and inadequate hospital environments.

**What is the implication of the main finding?**

- Implementing sensory-adapted spaces and specific training programs can promote safer, more humane, and inclusive care for children with Autism Spectrum Disorder.
- Adapting emergency services to neurodiverse needs may improve patient and family experiences and reduce emotional distress during hospital visits.

**Abstract**

**Background/Objectives**: Children with Autism Spectrum Disorder (ASD) who attend pediatric emergency services face challenges related to their sensory, cognitive, and behavioral characteristics. This study explored the perceptions of healthcare professionals and parents regarding the need to implement a sensory-adapted room for children with ASD in the pediatric emergency department. **Methods**: A phenomenological qualitative study was conducted through semi-structured interviews (October–December 2024) until data saturation. Participants included healthcare professionals and parents of children diagnosed with ASD. Intentional coding and co-occurrence analysis were performed using Atlas.ti (version 25.0.1). Study approved by Research Ethics Committee (code: 204-458-1). **Results**: Eighteen informants participated (10 professionals and 8 parents). Professional interviews revealed three themes and eight subthemes: Professional Training (approach strategies; training received; perceived needs), Hospital Environment (resource allocation; infrastructure; perceived needs during the emergency visit), and Emotional Aspects (emotional experience related to patient care; professionals' personal perceptions). In parents, four themes and ten subthemes were identified: Professional Training (perceptions of staff training; demonstrated emotional competencies; socioemotional relationships during care), Hospital Environment (infrastructure; perceived needs during emergency visits), Emotional Aspects (families' experiences; emotions during care), and ASD (diagnostic characteristics; children's needs; sensory regulation). **Conclusions**: Pediatric emergency services should be adapted to the needs of children with ASD. Both professionals and parents highlighted the importance of a sensory-adapted room to promote safe and humanized care. Barriers identified included lack of training, rigid protocols, and inadequate

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environments. Priority measures are continuous training programs, sensory infrastructure improvements, and more flexible clinical procedures, advancing toward an inclusive and comprehensive model of care.

**Keywords:** autism spectrum disorder; autistic disorder; emergency service; hospital; pediatric emergency medicine; patients' rooms; health facility environment; qualitative research

## 1. Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by persistent difficulties in social communication and interaction, as well as by the presence of restricted and repetitive patterns of behavior, interests, or activities. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), these symptoms must be present from early stages of development, cause clinically significant impairments in daily life, and cannot be better explained by intellectual disability or global developmental delay [1]. The clinical manifestations of ASD range from deficits in socioemotional reciprocity, atypical use of body language, and difficulties in understanding or maintaining social relationships, to stereotyped behaviors, rigid adherence to routines, intensely focused interests, and altered sensory responses—either hypersensitivity or hyposensitivity [1]. The severity of the disorder varies among individuals and is classified into three levels based on the degree of support required: level 1 (requiring support), level 2 (requiring substantial support), and level 3 (requiring very substantial support). This classification considers both the capacity for social interaction and the rigidity of behavior [1].

In hospital settings, it is essential to design environments that accommodate the specific needs of individuals with ASD in order to optimize their experience. However, there is still little clarity regarding the precise meaning of the term "autism-friendly." To implement an "autism-friendly" model in hospitals, several barriers and facilitators have been identified in relation to the hospital experience of these patients, linked to three key dimensions: people, place, and time. Flexibility in each of these areas is crucial to improving care and the overall experience of patients with ASD [2]. In pediatric emergency departments, the hospital environment can be particularly challenging for children with ASD due to their heightened sensitivity to sensory stimuli, difficulty tolerating unexpected changes, and limitations in communication skills. These conditions often result in episodes of severe anxiety, disruptive behaviors, or withdrawal, which complicate clinical assessment, delay care, and generate frustration for both families and healthcare professionals [3,4]. Several studies have highlighted that, in their current configuration, emergency rooms do not adequately address the needs of this population. The scientific literature describes numerous sensory-stimulating elements present in these environments that act as barriers to appropriate care. Among the most frequently identified obstacles are physical factors such as high levels of light and sound [5], the lack of specialized training and education among healthcare staff [6,7], organizational aspects such as the absence of adapted protocols [8], and the scarcity of sensory-regulated spaces [7,9]. Furthermore, the need to improve communication processes, as well as professional collaboration and support for families, has been emphasized [6,7,9–11].

In response to this situation, scientific literature has begun to show the positive impact that sensory-friendly environments can have in hospital contexts. Interventions such as the implementation of sensory rooms, the use of adapted visual or auditory tools, and continuous staff training have shown benefits for both the quality of care and the experiences of patients and their caregivers [12].

At the time this study was conducted, the Pediatric Emergency Department of the Hospital Universitario Materno Infantil de Canarias (HUMIC) did not have a sensory-adapted space for children with ASD. In this context, it was considered necessary to understand, from a phenomenological perspective, how parents and professionals perceive the potential implementation of a sensory room within this department. This qualitative approach aims to explore in depth the

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experiences and emerging needs related to the healthcare of children with ASD, in order to support proposals that promote more humanized, safe, and effective care for this population. Therefore, the objective of this study was to explore the perceptions of professionals and parents regarding the need to implement a sensory-adapted room for children with ASD in the emergency department.

## 2. Materials and Methods

### *2.1. Design*

A qualitative study with a phenomenological approach was conducted, combining Husserl's descriptive perspective [13] and Heidegger's interpretative hermeneutics [14]. Generative artificial intelligence (GenAI) was not used in the conception, preparation, or writing of this paper.

### *2.2. Experience or Role of Researchers*

The research team consisted of five professionals (two women and three men), of whom four (SBA, MAFF, JAF, and CARS) were pediatric nursing specialists, and three held PhDs in Nursing and Health Sciences (MAFF, HGdlT, and CARS) with previous experience in qualitative research. The remaining authors had no prior contact with any of the participants.

### *2.3. Participants and Sampling*

The pediatric emergency department is part of the HUMIC and provides care to the pediatric population of Gran Canaria. It functions as a tertiary-level monographic hospital and serves as a referral center for the province of Las Palmas (Canary Islands) as well as for the entire autonomous community of the Canary Islands (Spain). This department is staffed by more than 60 professionals, including specialized healthcare personnel—such as pediatricians and pediatric nurses—, residents in specialized health training programs—medical residents (MIR) and nursing residents (EIR)—, as well as auxiliary staff such as nursing care technicians (TCAE), among others.

With regard to children with ASD, available data from the Canary Islands population estimates a prevalence of 0.61%, reflecting figures similar to those reported in previous studies in both national and international contexts [15]. In the Canary Islands, there are several associations of families of children with ASD, among which the association *"Con tu ayuda todos sumaremos"* stands out, bringing together 74 families.

Participant recruitment was carried out through convenience sampling, using a snowball strategy and ensuring diversity in sociodemographic profiles in order to enrich the variability of discourses on the phenomenon under study [16]. Following the theoretical recommendations of Hennink et al. [17], it is considered that nine interviews are sufficient to achieve code saturation, whereas 16 to 24 interviews are required to reach meaning saturation. Therefore, a sample of 20 participants (10 professionals and 10 parents) was defined as appropriate for this study. One of the researchers (SBA) directly contacted 20 professionals through personalized invitations. In the case of parents, the invitation was disseminated via an internal communication channel of the association, targeting its 74 members. The study included professionals (pediatricians, pediatric nurses, medical residents—MIR, nursing residents—EIR, and auxiliary nursing care technicians—TCAE) with at least one year of experience in the HUMIC emergency department, as well as parents of children diagnosed with ASD aged between 3 and 15 years. Families of children with an ASD diagnosis made less than one-year prior were excluded. Withdrawal criteria included revocation of informed consent to participate in the study.

### *2.4. Data Collection*

Data were obtained through in-depth semi-structured interviews conducted in person by the researcher (SBA) between November and December 2024. The interviews were scheduled at times previously agreed upon with participants, ensuring that their work activities were not disrupted. Quiet, comfortable, and interruption-free spaces within the hospital environment were arranged to

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avoid unnecessary travel for participants. Relevant sociodemographic variables were collected to contextualize the narratives: for professionals, data such as sex, age, professional category, and years of work experience were recorded; for parents, information on relationship to the child, age, marital status, educational level, employment status, number of children, and age of the child with ASD was gathered. In addition, researchers kept field notes to complement the information obtained. The interviews varied in duration, ranging from 30 to 120 minutes, and were guided by a semi-structured script adapted for each participant group, which is presented in the Supplementary Table S1.

### *2.5. Data Analysis*

The interviews were audio-recorded using a digital recorder (PHILIPS® DVT1160 8GB) and subsequently transcribed verbatim after each session. This process was carried out continuously, allowing for progressive data analysis and the identification of relevant quotations, thereby facilitating initial coding and the emergence of analytical categories through an open coding procedure [18]. The analysis followed the classical methodological approach of Glaser and Strauss [19], which involves categorizing information through the identification of descriptive codes or meaning units (MU), grouped into emerging analytical categories (subthemes) until theoretical saturation of the data was reached. Subsequently, a selective coding process was conducted, whereby similar analytical categories were integrated and refined, selecting those with stronger empirical grounding to identify the central theoretical categories that explain the phenomenon under study. Finally, axial coding was performed through the analysis of category co-occurrences. The analysis of co-occurrences involves identifying and examining the relationships between categories that frequently appear together. This method enables a deeper exploration of how concepts are interconnected within participants' narratives, uncovering patterns, associations, and emerging themes. By highlighting these interrelations, co-occurrence analysis provides valuable insights into the structure and meaning of the phenomena, thereby enhancing the overall rigor and depth of qualitative analysis [20]. The analysis was carried out using Atlas.ti® software (version 25.0.1; Scientific Software Development GmbH, Germany). Results were expressed through verbatim quotations and co-occurrence tables, which allowed for both descriptive analysis and a deeper interpretation of the data.

### *2.6. Rigor and Trustworthiness*

To ensure methodological rigor, the criteria proposed by Lincoln and Guba [21,22] were followed. Credibility was achieved through detailed data collection, which was verified by the informants. Once the interviews were transcribed, participants were asked to review and validate the content of the conversations to ensure the accuracy of their narratives. Transferability was addressed by providing a comprehensive description of the setting, participants, context, and method. Dependability was evaluated through external review by two experts (CARS and HGdlT) who were not involved in data collection or analysis. Confirmability was established through triangulation between the transcript data and the researchers' field notes, as well as through inter-rater reflection on the researchers' own potential biases. In addition, data triangulation was applied by comparing transcriptions with the notes recorded by the researchers in the field diary. Furthermore, the study adhered to the guidelines of the Consolidated Criteria for Reporting Qualitative Research (COREQ) [23], which establish standards for quality and transparency in qualitative studies.

### *2.7. Ethical Considerations*

The ethical principles of confidentiality, anonymity, and the exclusive use of data for research purposes were observed. The collection, processing, and storage of personal data complied with current legislation. In addition, the fundamental ethical principles outlined in the Nuremberg Code, the Declaration of Helsinki, and the Belmont Report were taken into consideration, ensuring informed consent, respect for decision-making autonomy, and the protection of participants at all

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times. The study was approved by the Research Ethics Committee of the Hospital Universitario Doctor Negrín in Gran Canaria, Las Palmas (code: 2024-548-1).

## 3. Results

### *3.1. Participant Characteristics*

Of the total participants contacted (20 professionals and 74 parents), 10 professionals and 10 parents accepted the invitation. However, two of the latter did not maintain the necessary contact for inclusion in the study; therefore, the final sample consisted of 18 informants (n = 10 professionals and n = 8 parents). The sociodemographic characteristics of professionals are presented in Table 1, and those of parents in Table 2.

**Table 1.** Sociodemographic characteristics of professionals.

| Professional | Gender | Age | Professional category | Years in pediatric emergency care |
|---|---|---|---|---|
| Professional 01 | Female | 39 | Pediatric nurse | 3 |
| Professional 02 | Female | 55 | Auxiliary nursing care technician | 1 |
| Professional 03 | Female | 60 | Pediatric nurse | 34 |
| Professional 04 | Female | 29 | Nursing resident-EIR | 1 |
| Professional 05 | Male | 24 | Nursing resident-EIR | 1 |
| Professional 06 | Male | 37 | Pediatricians | 9 |
| Professional 07 | Female | 31 | Auxiliary nursing care technician | 4 |
| Professional 08 | Female | 26 | Medical residents pediatricians-MIR | 1 |
| Professional 09 | Male | 26 | Medical residents pediatricians-MIR | 1 |
| Professional 10 | Female | 39 | Pediatricians | 14 |

**Table 2.** Sociodemographic characteristics of parents.

| Parents | Relationship | Age | Marital status | Education level | Employment status | Number of children | Age of the child with ASD * |
|---|---|---|---|---|---|---|---|
| Parent 01 | Mother | 47 | Married | Secondary | Baby care store | 2 | Son: 16<br>Daughter: 9 |
| Parent 02 | Mother | 33 | Single | Secondary | Unemployed | 2 | 6 |
| Parent 03 | Father | 39 | Divorced | Secondary | Police | 1 | 5 |
| Parent 04 | Mother | 35 | Married | Secondary | Unemployed | 1 | 8 |
| Parent 05 | Mother | 49 | Single | Secondary | Waitress | 4 | 13 |
| Parent 06 | Mother | 37 | Married | Secondary | Nursing assistant | 2 | 9 |
| Parent 07 | Mother | 37 | Single | Secondary | Unemployed | 1 | 10 |
| Parent 08 | Mother | 27 | Single | Secondary | Waitress | 2 | 5 |

* ASD: Autism Spectrum Disorder.

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*3.2. Themes*

A total of 150 verbatims were identified (n = 54 professionals and n = 96 parents), which were coded into 290 MUs (n = 110 professionals and n = 180 parents).

For professionals, eight subthemes were identified, organized into three themes. The first theme, Professional Training, included Approach Strategies (n = 19 MU), Training Received (n = 20 MU), and Perceived Needs (n = 17 MU). The second theme, Hospital Environment, encompassed Resource Allocation (n = 9 MU), Infrastructure (n = 10 MU), and Perceptions of the Need for an Adapted Room (n = 14 MU). Finally, the theme Emotional Aspects included Emotional Experience Related to Patient Care (n = 12 MU) and Personal Perceptions of Professionals (n = 9 MU).

For parents, four main themes were identified. The first, Professional Training, included Perceptions of Staff Training (n = 18 MU), Demonstrated Emotional Competencies (n = 11 MU), and Socioemotional Relationships Established During Care (n = 15 MU). The second theme, Hospital Environment, encompassed Infrastructure (n = 19 MU) and Perceived Needs During the Emergency Visit (n = 37 MU). The third theme, Emotional Aspects, included Families' Experiences (n = 13 MU) and Emotions Experienced During Care (n = 27 MU). Finally, the theme Autism Spectrum Disorder incorporated Diagnostic Characteristics (n = 21 MU), Children's Specific Needs (n = 18 MU), and Sensory Regulation (n = 16 MU). Table 3 presents all themes, subthemes, and MUs.

**Table 3.** Themes, subthemes, and meaning units.

| Participants group | Themes | Subthemes | Meaning Units |
|---|---|---|---|
| Professionals | Professional Training | Approach Strategies | Intervention techniques, Use of pictograms, Virtual reality, Anesthesia, Clarity, Oral medication, Unnecessary examinations, Coping with trauma, Family collaboration, Nonverbal communication, Effective communication, Unmet needs, Health psychology, Toys, Inclusion of familiar objects, Observation, Touch, Importance of patient care, Healthcare professionals |
| | | Training Received | Self-reflection, Self-taught, Self-assessment, Inadequate training, Collaboration, Knowledge, Prior knowledge, Consideration of other factors, Conviction, Professional development, Lack of knowledge, Discontent, Experience, Lack of training, Insufficient training, Uncertainty, Insecurity, No knowledge, Optimism, Recognition of limitations |
| | | Perceived Needs | Adaptability, Individualized care, Child care, Patient care, Parental consideration, Efficiency of care, Quality of care, Lack of training, Infrastructure, Needs, Time, Material resources, Satisfaction, Conformity, Patient care, Waiting room, Communication difficulties. |

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| | | | |
|---|---|---|---|
| | | Resource Allocation | Special care, Shortage, Comfort, Efficiency, Sensory stimulation, Patient needs, Material needs, Pictograms, Space |
| | Hospital Environment | Infrastructure | Pleasant environment, Controlled environment, Relaxing environment, Calm environment, Adequate environment, Inadequate environment, Not adapted, Waiting room, Triage, Adapted room |
| | | Perceived Needs During the Emergency Visit | Safe environment, Sensory-friendly environment, Well-being, Care and protection, Healthcare professionals, Audiovisual stimulation, Creative interests, Sensory toys, Light, Sensory needs, Noise, Adapted room, Safety, Personalized treatment |
| | Emotional Aspects | Emotional Experience Related to Patient Care | Emotional conflict, Aggressiveness, Challenges, Empathy, Stress, Negative experiences, Frustration, Emotional impact, Discomfort, Patience, Patient satisfaction, Emotional sensitivity |
| | | Professionals' Personal Perceptions | Intervention strategies, Lack of resources, Lack of training, Interaction with children, Infrastructure, Professionalism, Stress, Emergency department, Waiting room |
| Parents | Professional Training | Perceptions of Staff Training | Anticipation, Family communication, Knowledge, Lack of knowledge, Misinformation, Diversity, Lack of adaptation, Lack of clarity, Lack of communication, Lack of understanding, Lack of training, Lack of updating, Staff training, Language skills, Ignorance, Training, No training |
| | | Demonstrated Emotional Competencies | Adaptation, Awareness, Social awareness, Empathy, Lack of empathy, Lack of humanity, Lack of sensitivity, Misunderstanding by others, Patience, Healthcare professionals, Respect |
| | | Socioemotional Relationships During Care | Conflict, Family conflicts, Challenges, Work-related difficulties, Social avoidance, Lack of adaptation to the child's needs, Family intervention, Socioemotional judgment, Doctor–patient relationship, Family relationships, Interpersonal relationships, Resistance to rules, Family responsibilities, Sleep disorder, Language disorder |
| | Hospital Environment | Infrastructure | Accessibility, Child-friendly environment, External environment, Inadequate environment, |

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| | | |
|---|---|---|
| | | Restrictive environment, Noisy environment, Environment, Available space, Long waiting time, Impact of the environment, Impact of the environment on patient experience, Importance of a friendly environment in the emergency department, Physical limitation, Needs for a child-friendly environment, Room, Waiting room, Health system, Waiting time, Triage |
| | Perceived Needs During the Emergency Visit | Sensory stimulation, Auditory stimulus, Visual aid, Tactile stimulus, Visual stimulus, Communication with pictograms, Nonverbal communication, Visual communication, Inadequacy of protocol, Materials, Need, Need for emotional support, Need for training, Need for control, Need for apologies, Need for distraction, Regulated light, Need for more context, Need for recognition, Need for concrete solutions, Specific needs, Medical needs, Adapted needs, Children, Observation, Negative perception of the medical environment, Personalization, Staff preparation, Prioritization of needs, Proposal for improvement, Exclusive protocol, Recognition, Necessary resources, Relaxation, Adapted room, Patient service, Double A card |
| Emotional Aspects | Families' Experiences | Lack of entertainment, Discontent, Fun, Waiting, Parental stress, Negative experience, Positive experience, Lived experience, Functionality, Injustice, Mistreatment, Complaint, Emotional overload |
| | Emotions During Care | Distress, Anxiety, Family anxiety, Service deficiencies, Poor customer care, Distrust, Desire, Desperation, Difficulty, Disagreement, Hope, Stress, Frustration, Impatience, Helplessness, Uncertainty, Discomfort, Misunderstanding by others, Dissatisfaction, Physical discomfort, Fear, Fear of doctors, Annoyance, Nervousness, Worry, Satisfaction, Feeling of helplessness |
| Autism Spectrum Disorder | Diagnostic Characteristics | Attachment, Nonverbal communication, Care, Child care, Atypical development, Language development, Early diagnosis, Communication difficulties, Associated illness, Strategies, Inability to concentrate, Child's interests, |

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| | | |
|---|---|---|
| | | Different needs, Diversified interests, Different needs, Lack of cooperation, Concern for the child's well-being, Intolerance to noise, Sensory sensitivity, Suspected diagnosis, ASD |
| | Children's Needs | Adaptability to patient needs, Individualized care, Family support, Communication with parents, Distraction, Strategies, Lack of visual support, Need for external support, Need for family support, Adapted needs, Children's needs, Environmental needs, Physical needs, Inadequate needs, Material needs, Parental involvement, Asking what is needed, Occupational therapy |
| | Sensory Regulation | Self-regulation, Visual aid, Sensory aids, Emotion control, Sensory dysregulation, Distractions, Entertainment, Muscle hyperlaxity, Hypotonia, Mobile phone, Pressure, Reactions to stimuli, Regulation, Emotional regulation, Relaxation techniques, Technology |

3.2.1. Professionals

- Theme 1: Professional Training

The professionals reported various strategies used in approaching children with ASD, such as the use of pictograms, inclusion of familiar objects, sedation, and nonverbal communication:

*"We have pictograms and other distraction methods. The collaboration of the family is essential for the relaxation of these patients" (Professional 06).*

*"Speak clearly and slowly, always accompanied by a reference figure for them" (Professional 01).*

Regarding the training received, there was a widespread perception of specific training deficiencies:

*"We have trained ourselves more on our own than through the institution. It is all very self-taught" (Professional 07).*

*"Knowledge has been acquired through experience. I have never received training; you learn as you go" (Professional 03).*

In addition, the professionals expressed perceived needs related to individualized care, time constraints, and lack of resources:

*"We lack time and staff. You cannot give a child with autism the attention he needs" (Professional 05).*

*"Adapted rooms, time to treat and talk to the children calmly … That would be ideal: time, resources, and training" (Professional 09).*

- Theme 2: Hospital Environment

Regarding resource availability, professionals described material limitations and the lack of adapted sensory stimuli:

*"We are not prepared; there is no space for them" (Professional 05).*

Infrastructure was also a source of complaints from professionals:

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*"The waiting room is a chaos of stimuli. For a child with ASD, it is hell" (Professional 02).*

*"A hostile environment such as the emergency department, where quite anxiety-inducing procedures are carried out" (Professional 06).*

Most professionals valued positively the possibility of having an adapted room:

*"A quiet room, with less light and noise, would be ideal. That would make the difference" (Professional 08).*

- Theme 3: Emotional Aspects

The accounts revealed a significant emotional impact:

*"Many times, I leave feeling frustrated. I feel that we are not doing things right with these children" (Professional 10).*

*"They are patients who move you deeply. They demand more from you as a person than as a professional" (Professional 01).*

*"… from the outset they reject physical contact … the child feels cornered. Several of us are going to hold him, inject him, suture him, or perform an electrocardiogram, and they do not understand why" (Professional 03).*

Regarding their personal perceptions, emotions of stress and a sense of helplessness due to lack of preparation were expressed:

*"You feel like you are improvising, that you don't have the tools to do it properly" (Professional 09).*

3.2.2. Parents

- Theme 1: Professional Training

Parents expressed a general perception of insufficient training among healthcare personnel and, regarding emotional competencies, highlighted the importance of professionals adopting understanding and empathetic attitudes:

*"When I have encountered a professional who showed knowledge, it was due to personal experiences. One must be prepared for this type of person" (Parent 03).*

*"There is a lack of empathy and knowledge. They are not prepared, and it shows. To all professionals: be attentive, read, observe the situation, put yourselves in our place, and be empathetic" (Parent 06).*

*"Since they are not trained and are not aware of the characteristics of children with ASD, what they think is that my son is poorly behaved, and with the looks they give me I feel judged. Mothers notice this; it's been nine years living through these situations…" (Parent 06).*

Some parents also pointed out a lack of sensitivity:

*"There isn't even the question 'Do you need something?' Nothing, no trace of empathy. We would love not to have a disability, but we do" (Parent 07).*

In terms of socioemotional relationships, tensions and judgments about parenting were identified:

*"I felt that I was being blamed for not knowing how to calm my son" (Parent 04).*

*"There was little tact; I felt judged as a mother" (Parent 08).*

- Theme 2: Hospital Environment

Parents described the infrastructure as inadequate:

*The waiting room is ridiculous and not functional at all. You only have chargers" (Parent 07).*

*"We need a quieter space, with toys or something visual to distract him" (Parent 05).*

*"There is nothing aimed at children, not even a table with crayons to draw" (Parent 02).*

Regarding perceived needs, parents expressed multiple shortcomings:

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*"I don't see them using visual supports either. They don't explain things to him before doing them; it's usually me. It depends on the staff on duty at that moment" (Parent 02).*

*"I miss being asked—by the father or the mother—how we can better manage with the children. Each child works differently. At least there should be a little communication" (Parent 03).*

- Theme 3: Emotional Aspects

The experiences reported ranged from dissatisfaction to emotional overload:

*"The waiting room is crowded, and my son cannot tolerate the babies crying; he gets distressed because he does not know how to comfort them. For me, it is traumatic" (Parent 07).*

*"I left there with anxiety. It was more traumatic for me than for him" (Parent 02).*

The emotions expressed included frustration, distress, helplessness, and hope:

*"Sometimes the doctor understands and asks for my collaboration, but other times they do not and prefer to do it their way no matter how much I explain. They make the child have a bad time by not listening to me and not letting me hold him. At no point do they address the child; out of ten doctors, two will do so. The rest sometimes do not even explain things to me, and that is frustrating, to say the least" (Parent 04).*

- Theme 4: Autism Spectrum Disorder

Families described diagnostic characteristics such as sensory sensitivity, intolerance to noise, and communication difficulties:

*"When my son gets nervous, he flaps his hands and covers his ears… The strategies we use at home to help him regulate are physical contact with me, holding him gently, hugging him, and talking to him about things he likes to distract him" (Parent 03).*

Regarding specific needs, parents highlighted the importance of individualized and adapted care:

*"They throw at you the phrase 'the protocol is like this for neurotypical children.' Adaptation is lacking; there are children who function differently. A flexible protocol is necessary" (Parent 03).*

In relation to sensory regulation, strategies such as the use of technology or visual aids were mentioned:

*"I always bring the cellphone with cartoons; it is the only way to calm him down" (Parent 01).*

*"With softer lights and less noise, everything would be much more manageable" (Parent 08).*

### *3.3. Co-occurrences*

The co-occurrence analysis among the subthemes identified in the professionals' interviews revealed multiple significant connections. The most prominent were those linking Approach Strategies with Emotional Experience Related to Patient Care (n = 7), as well as with Perceived Needs (n = 7). Relevant associations were also identified between Training Received and Perceived Needs (n = 5), as well as between Resource Allocation and Perceived Needs During the Emergency Visit (n = 5), as shown in Table 4.

**Table 4.** Co-occurrence analysis in professionals' interviews.

| **Subthemes** | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** |
|---|---|---|---|---|---|---|---|---|
| Approach Strategies (A) | 0 | 1 | 7 | 2 | 0 | 1 | 7 | 3 |
| Training Received (B) | | 0 | 5 | 4 | 0 | 1 | 3 | 1 |
| Perceived Needs (C) | | | 0 | 1 | 4 | 2 | 5 | 5 |
| Resource Allocation (D) | | | | 0 | 4 | 5 | 3 | 1 |
| Infrastructure (E) | | | | | 0 | 6 | 2 | 3 |
| Perceived Needs During the Emergency Visit (F) | | | | | | 0 | 1 | 2 |

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| | | |
|---|---|---|
| Emotional Experience Related to Patient Care (G) | 0 | 1 |
| Professionals' Personal Perceptions (H) | | 0 |

With regard to parents, the most prominent co-occurrences were concentrated around the subtheme Emotions During Care, particularly in its relationship with Families' Experiences (n = 22), Diagnostic Characteristics (n = 13), Perceived Needs During the Emergency Visit (n = 17), and Infrastructure (n = 13). Finally, it is worth noting that the subtheme Perceived Needs During the Emergency Visit showed high co-occurrence with most of the subthemes analyzed, being especially significant in its associations with Diagnostic Characteristics (n = 13), Families' Experiences (n = 12), Perceptions of Staff Training (n = 11), and Infrastructure (n = 11), as shown in Table 5.

**Table 5.** Co-occurrence analysis in parents' interviews.

| **Subthemes** | **I** | **J** | **K** | **L** | **M** | **N** | **O** | **P** | **Q** | **R** |
|---|---|---|---|---|---|---|---|---|---|---|
| Perceptions of Staff Training (I) | 0 | 11 | 3 | 4 | 11 | 3 | 7 | 8 | 4 | 1 |
| Demonstrated Emotional Competencies (J) | | 0 | 3 | 2 | 11 | 7 | 12 | 6 | 2 | 1 |
| Socioemotional Relationships During Care (K) | | | 0 | 3 | 2 | 5 | 7 | 4 | 2 | 1 |
| Infrastructure (L) | | | | 0 | 11 | 11 | 13 | 7 | 7 | 4 |
| Perceived Needs During the Emergency Visit (M) | | | | | 0 | 12 | 17 | 13 | 10 | 7 |
| Families' Experiences (N) | | | | | | 0 | 22 | 8 | 5 | 6 |
| Emotions During Care (O) | | | | | | | 0 | 13 | 5 | 7 |
| Diagnostic Characteristics (P) | | | | | | | | 0 | 7 | 8 |
| Children's Specific Needs (Q) | | | | | | | | | 0 | 5 |
| Sensory Regulation (R) | | | | | | | | | | 0 |

## 4. Discussion

The findings highlight an urgent need for transformation in pediatric emergency services to improve the quality of care provided to children with ASD. Consistent with previous literature, it was observed that the chaotic nature of the hospital environment, combined with the lack of sensory and communicational adaptations, generates a distressing experience for both patients and their parents [6,24]. In particular, waiting rooms were identified as critical spaces where sensory overstimulation and prolonged waiting times can trigger disruptive behaviors and increase the risk of more invasive clinical interventions [7].

With regard to professional training, both professionals and parents agreed in identifying insufficient and poorly structured preparation for the care of children with ASD. Professionals indicated that although they resort to strategies such as the use of pictograms, familiar objects, or nonverbal communication, much of their learning has been self-taught and experience-based, reflecting a marked absence of systematic institutional training programs [25,26]. This training gap has been widely acknowledged in the literature, which emphasizes how the lack of formal ASD training in hospital settings contributes to insecurity, frustration, and stress among healthcare staff [27,28]. Parents, in turn, perceive this lack of knowledge and empathy, which negatively affects trust and the quality of the relationship with professionals [24]. Our findings are consistent with those reported by Nicholas et al. [6], who underscore the urgent need for continuous training programs focused on sensory care, behavioral management, and adapted communication strategies.

In line with the observations of Ozturk and Merter [29], the physical infrastructure of the hospital environment is identified as one of the main obstacles to providing safe care tailored to the needs of children with ASD. The absence of sensory-adapted spaces, together with the rigidity of care protocols, significantly limits the ability of healthcare staff to deliver individualized and humanized

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care [29,30]. This is compounded by the scarcity of adaptive materials, such as sensory toys, pictograms, and communication support tools, which further widens the care gap. These findings are consistent with the results of Gormley et al. [30], who highlight the importance of implementing augmentative communication systems to improve the care of patients with language difficulties. From the families' perspective, noisy, chaotic, and unwelcoming hospital environments—particularly waiting rooms—increase anxiety and can generate feelings of loneliness, disorientation, and abandonment [24]. The specialized literature emphasizes that investment in sensory-adapted infrastructures not only reduces anxiety and improves the hospital experience, but also promotes patient cooperation and efficiency of care [6,31,32].

The emotional dimension emerged as a central axis in the experiences of both professionals and families. On the one hand, professionals reported feelings of frustration, stress, and helplessness, particularly related to the lack of material resources and specific training. On the other hand, families expressed intense emotions such as anxiety, distress, and a sense of abandonment, although they also identified moments of hope and relief when the care they received was empathetic, respectful, and adapted to their needs [24]. These findings are consistent with those reported by Ben Natan et al. [33], who highlight the profound emotional impact that the healthcare system can generate, as well as the need to implement emotional support strategies to improve the care experience.

Research indicates that the communicative difficulties of children with ASD directly influence parents' perception of care quality, particularly regarding waiting times, staff's ability to listen and respond to their concerns, coordination among professionals, and the overall organization of the service. The study also corroborates that both mothers and fathers go through complex emotional processes and face similar practical challenges, including stages of grief, the need for clear information, sustained emotional support, sufficient economic resources, and a strong need for teamwork within the family. These similarities reinforce the importance of designing clinical interventions that actively consider both parents as recipients of support and guidance.

In this regard, nurses are positioned as key figures within the healthcare system, acting as a bridge between families and the healthcare team. Their role is essential to provide active listening, emotional support, practical guidance, and education about ASD. Tools such as informational booklets or accessible digital files have proven useful in facilitating access to resources, improving family coping, and reducing overload [34]. However, a concerning disconnection between some professionals and caregivers was also identified, in which parents felt that they were not adequately heard or were even blamed for their children's behaviors during emergency visits [6,24]. This communication gap undermines mutual trust and hinders effective collaboration, which is considered fundamental to improving the quality and safety of care [29]. The specific characteristics of ASD demand a highly personalized and flexible approach to care, in which aspects such as sensory regulation, communicative adaptation, and respect for the child's pace are fundamental [24]. Both families and professionals agree on the importance of implementing adapted strategies that include visual aids, minimization of environmental stimuli, and predictable routines—key elements to avoid sensory overload and improve the child's cooperation during care [6,24]. The literature supports these needs, highlighting the effectiveness of "sensory-friendly" care models and non-pharmacological interventions as tools to foster more positive, humanized, and safe experiences for children with ASD in hospital contexts [7,32]. In this regard, the care model inspired by Jean Watson's Theory of Human Caring, adapted by Wood et al. [7], demonstrates that transforming the physical environment, combined with interdisciplinary staff training and greater community involvement, can generate more compassionate and emotionally safe care settings for this population. The professionals who participated in our study expressed interest in adopting such approaches, recognizing their potential to improve care quality. However, they emphasized that successful implementation requires strong institutional support, both in terms of material resources and ongoing training, to ensure sustainability and long-term effectiveness.

Adapted communication constitutes a fundamental axis to ensure child-centered care for children with ASD. Both scientific evidence and the narratives of parents and professionals concur

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that effective interaction requires not only sensitivity but also specific skills on the part of healthcare staff. In this regard, Sabetsarvestani and Geçkil [28] emphasize the importance of balancing dyadic and triadic communication (child–nurse–caregiver), employing both verbal and nonverbal methods, and respecting the child's processing and response times, while avoiding over-demanding interactions or premature interruptions. Furthermore, tensions emerged related to administrative aspects that directly affect the quality of care. A notable example was the ambiguous management of the *"Doble A"* health card, designed to grant priority and adaptations for individuals with special needs. Although its purpose is to promote preferential treatment, in practice it generates confusion among professionals, which may lead to inequalities and frustration among families. This situation highlights the need to review existing protocols, clarify their application, and provide specific training on differentiated care policies, in order to avoid institutional contradictions and ensure equity in access to services.

This study presents some limitations that should be considered when interpreting its results. First, although the sample size was consistent with theoretical recommendations [17], its relatively small number may have limited the generalizability of the findings and restricted the representation of a broader diversity of experiences. Furthermore, all interviews were conducted by a single interviewer, which ensured methodological consistency but may also have constrained the richness of interactions and introduced potential interpretive biases. To mitigate this risk, strategies to enhance confirmability were applied, including critical review and joint reflection with other researchers, in order to strengthen intersubjectivity and the credibility of the results. Another relevant limitation was the difficulty in recruiting participants, particularly among the parent group, due to their limited availability and willingness to participate. Recruitment of professionals was also challenging, partly because of the limited interest in taking part in the study, which reduced the breadth and diversity of clinical perspectives collected. For all these reasons, future research should aim to expand the number and variety of participating centers, include larger and more diverse samples, and employ methodological triangulation strategies to strengthen the validity of the findings. Furthermore, it would be pertinent to design and evaluate evidence-based interventions with the aim of analyzing their impact on reducing agitation episodes, improving family satisfaction, and increasing the efficiency of care delivery.

## 5. Conclusions

The findings of this study highlight the urgent need to transform the care of children with ASD in pediatric emergency services, based on the perceptions of both parents and healthcare professionals. Both groups agreed on the importance of implementing a sensory-adapted room that responds to the specific needs of this population, contributing to reducing stress, sensory overload, and episodes of agitation, thereby facilitating more humanized, safe, and effective care. Despite the individual commitment of many professionals, relevant limitations in current care were identified, such as the lack of specific training, the absence of adaptive tools, the insufficient adequacy of the physical environment, and the rigidity of clinical protocols. These factors affect both the quality of care and the experience of families. In this context, the implementation of concrete measures is considered a priority, such as continuous ASD training programs for healthcare staff, improvements in the sensory infrastructure of emergency spaces, and greater flexibility in care protocols. These actions would enable progress toward a more inclusive care model, centered on the real needs of children with ASD and their families. Furthermore, the results underscore the importance of adopting a comprehensive perspective that considers not only clinical aspects but also the emotional, social, and contextual dimensions that shape the experience of ASD in the hospital environment.

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**Supplementary Materials:** The following supporting information can be downloaded at the website of this paper posted on Preprints.org, Table S1: Semi-structured interview.

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## Abbreviations

The following abbreviations are used in this manuscript:

| | |
|---|---|
| ASD | Autism Spectrum Disorder |
| COREQ | Consolidated Criteria for Reporting Qualitative Research |
| DSM-5 | Diagnostic and Statistical Manual of Mental Disorders |
| EIR | nursing residents |
| HUMIC | Hospital Universitario Materno Infantil de Canarias |
| MIR | medical residents |
| MU | Meaning Units |
| TCAE | auxiliary nursing care technicians |

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