Sapiens Journal in Higher Education
Vol.1 No.3 (2024): Journal Scientific

ID del documento: SHE-Vol.1.N.3.002.2024

Artículo de Investigación

Intervención en el trastorno del espectro autista (TEA).

Intervention in autism spectrum disorder (ASD)

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Reception: *03-november-2024* ***Acceptance:*** *23-november-2024* ***Publication:*** *20-december-2024*

How to cite this article:

Lucero Albán, P. del C., Cárdenas Palacios, M. S., Ordoñez Ordoñez, R. A., & Alvarado Jaramillo, E. del C. (2024). Intervention in autism spectrum disorder (ASD). *Sapiens in Higher Education*, *1*(3), 12-25. https://revistasapiensec.com/index.php/Sapiens_in_Higher_Education/article/view/79

Resumen

El trastorno del espectro autista (TEA) afecta a 1 de cada 100 niños y varía regionalmente. Se origina neurobiológicamente y puede diagnosticarse en la infancia. Incluye comorbilidades como epilepsia, ansiedad y déficit de atención, con variaciones en las capacidades cognitivas. El objetivo de la investigación es realizar una revisión de las técnicas de intervención en el trastorno del espectro autista (TEA) desde diferentes enfoques de investigación y según sus aportaciones a la mejora de las condiciones de los niños. Para ello se realizó una revisión de 14 artículos científicos de Scopus, Scielo, Elseiver, Redalyc. Los hallazgos han demostrado que las diferentes técnicas permiten mejoras importantes en las condiciones que presentan los niños con autismo, como mejor conducta, desarrollo de habilidades comunicativas y sociales, mejor concentración, fijación de la mirada, entre otras, que les otorgan autonomía, lo cual es lo que en última instancia se persigue. Cada método tiene su particularidad, por lo que la integración de estos puede brindar importantes beneficios para el niño, aunque en algunos casos se requiere de más investigaciones para validar la efectividad de los métodos.

Palabras clave: Trastorno del espectro autista, autismo, técnicas de intervención, habilidades sociales, habilidades comunicativas.

Abstract

Autism spectrum disorder (ASD) affects 1 in 100 children and varies regionally. It has neurobiological origins and can be diagnosed in infancy. It includes comorbidities such as epilepsy, anxiety and attention deficit disorder, with variations in cognitive abilities. The objective of the research is to carry out a review of intervention techniques in autism spectrum disorder (ASD) from different research approaches and according to their contributions to the improvement of children's conditions. For this, a review of 14 scientific articles from Scopus, Scielo, Elseiver, Redalyc was carried out. The findings have shown that the different techniques allow important improvements in the conditions presented by children with autism, such as better behavior, development of communicative and social skills, better concentration, gaze fixation, among others, which give them autonomy, which It is what is ultimately pursued. Each method has its particularity, so the integration of these can provide important benefits for the child, although in some cases more research is required to validate the effectiveness of the methods.

Keywords: Autism spectrum disorder, autism, intervention techniques, social skills, communication skills.

1. INTRODUCCIÓN

Autism spectrum disorder (ASD), also known as autism, has a prevalence of approximately 1 per 100 children according to the World Health Organization (2023) and may be variable according to different regions, with an upward trend. such as in Qatar, which registers 1.5/100, being the country with the highest number of cases worldwide, followed by Saudi Arabia, Afghanistan, Canada, Japan, Colombia, China, the United States, Ireland and Taiwan, which are the 10 nations with highest records.

This disorder, which originates at a neurobiological level, includes a series of conditions that are related to brain development and whose conditions can be identified in early childhood, although its diagnosis usually occurs in the following years. The comorbidities that occur in autistic people are epilepsy, depression, anxiety, attention deficit hyperactivity disorder, as well as difficulties falling asleep and self-harm, intellectual disability. Added to this are various conditions in cognitive abilities, and there may be cases in which a considerable deterioration of them is evident or, failing that, a great development of them (World Health Organization, 2023).

Autism generally tends to present with certain characteristics, these include obvious problems in the development of social and communicative skills, difficulties with changes, particular interests and repetitive behaviors, which are sometimes accompanied by hypersensitivity to environmental stimuli (Fernández, 2021). According to the DSM V, it is characterized by a persistent deficiency in communication and social interaction in different contexts, registering problems approaching others, lack of interest or inability to begin or respond to a social interaction; difficulty in non-verbal communication, lack of gestures or no eye contact; and problems in behavioral adjustments in different environments or when playing and making friends, repetitive and restrictive behaviors are also recorded. (American Psychiatric Association, 2014).

On the other hand, according to the International Classification of Diseases, autism spectrum disorders include mental and behavioral disorders and are classified with code F84 for profound developmental disorders whose subclassifications include: F84.0 Childhood Autism, F84.1 Atypical Autism , F84.2 Rett syndrome, F84.3 Other childhood disintegrative disorder, F84.4 Hyperkinetic disorder with mental retardation and stereotyped movements, F84.5 Asperger syndrome (World Health Organization, 2019).

This group of disorders is characterized by abnormal conditions in bilateral social interaction and in the communication process, as well as special conditions regarding the interests and activities of individuals, since they are limited and repetitive. Furthermore, in cases in which autism and Asperger syndrome occur, conditions of nutritional hyperselectivity characterized by a rejection of eating a variety of foods have been evident, so the diet is limited and generally they always eat the same thing. There is even talk of the development of fixation behaviors towards the texture, flavor, smell or temperatures of certain foods or products. Such a situation could cause nutritional problems in people, whether malnutrition or overweight and obesity (Hernández et al., 2023).

Given the above, it is evident that the needs of children with autism are diverse and have their degree of complexity, which is why they require comprehensive care, in order to ensure that they enjoy physical and mental health. For this reason, the importance of a multidisciplinary intervention must be considered so that children have the same opportunities that all individuals have to access health, education, as well as to be included in society. Thus, this research aims to carry out a review of intervention techniques in autism spectrum disorder, considering those most effective actions and processes that seek to provide them with better quality.

To do this, it is also necessary to take into account the degrees of ASD, since children with grade 1 (mild autism) normally have greater independence and their limitations are rather found in the social sphere, with the presence of Asperger's syndrome to a greater extent due to to late referral to a specialist. This condition

has even been evidenced with a prevalence of 1/91 in Barranquilla and 1/87 in Medellín, meaning that this comorbidity is high, thus highlighting the need for care to prevent repercussions in the future such as sleep problems, alterations in the mood, difficulties with interpersonal relationships and difficulties in accessing the work environment. In the case of grade 2 (moderate autism) the child has greater deficiencies at the communicative level, in addition his interest is reduced, he is anxious about changes, his behavior is inflexible, restrictive and repetitive. While at level 3 (severe autism) the child presents more complex problems in communication and social interaction, in addition the behavior is markedly repetitive and restrictive in such a way that it interferes with their activities (Celis & Ochoa, 2022).

For this reason, intervention programs or actions in children with ASD must focus on enhancing the different areas of their development, promoting their independence in carrying out daily activities. Furthermore, it is here where parents, the family group, therapists and educators play a very important role so that the child can integrate socially, since they will be the ones who will meet the challenge of understanding the conditions and characteristics of autism, contextualizing them in the child and thus to be able to give it the attention and education it requires.

2. METODOLOGÍA

The aim of this research was to carry out a systematic review of studies referring to intervention techniques or methods in autism spectrum disorder, so it was aimed at searching for, identifying, evaluating and interpreting them, as stated by Codina (2020). Who also explains about informative and expository studies, which seek the recreation of theoretical contexts based on the review of reliable sources. For this purpose, an information search was carried out in Scopus, Scielo, Elseiver, Redalyc for 14 scientific articles related to the topic of study and that have been carried out in the last 5 years. For the search, key terms were used such as: "ASD intervention", "autism", "ASD intervention techniques", "ASD", "Autism Spectrum Disorder".

This is how we proceeded with the review of the information, which in the first phase involved reading the title and its summary; after that, in a second phase, an in-depth reading was carried out to identify if the study met the research objective proposal and the data allowed a contribution to it to obtain a coherent and clear context regarding intervention techniques in ASD. Thus, the inclusion criteria are considered to be that: the selected articles are indexed in the Scopus, Scielo, Elseiver, Redalyc databases; are original; open access; related to the topic of study; developed in the last 5 years. While the exclusion criteria were: articles from other databases other than those mentioned; from other years that do not correspond to those indicated; of another type of approach in relation to ASD (different from intervention techniques).

This methodology constitutes a contribution to the development of meta-analysis, the enhancement of the capacity for systemic review and also the ability to synthesize large amounts of data, this through the ordering, selection and organization of information with the intention of generate new knowledge.

3. RESULTADOS Y DISCUSIÓN

Flows et. al (2023) explained that psychological interventions usually have beneficial effects, especially in favor of communication skills, intelligence and adaptive behavior, and also have a considerable impact on the adaptation of parents with respect to the needs of the children. The authors highlight in this regard that behavioral interventions, especially those based on the ABA model to modify behavior, are the ones that present the best effects in cases of early care, reducing anxiety, improving communication and linguistic

understanding, as well as daily skills. This has an impact on the individual's autonomy, intelligence, social skills and adaptive behaviors. Therefore, the researchers suggest that programs to intervene in cases with autism be characterized by a focus on behavior and behavioral techniques, preferably with application in early stages and with intensive frequency of sessions, they also mention the importance of the use of technology as a support for learning.

On the other hand, in the approach of Celis & Ochoa (2022), the best way to provide care to a person with autism is through an intervention that focuses on developing their social skills; however, they explain the possibility of using integrative therapies according to the clinical criteria and the patient's needs in which different forms of action are resorted to. Thus, it exposes treatment alternatives, among which are psychotherapy, through which interventions focused on improving behavior are carried out and that allow the individual to increase their sociability and communication capacity. It also explores psychopharmacology and mentions that there are various drugs to control the symptoms derived from comorbidities and affective and behavioral disorders, although there are also other alternatives to treat these alterations, explaining that methylphenidate or atomoxetine is used in ADHD depending on be the case, while fluoxetine is considered in cases where anxiety, depression, phobia and compulsion occur.

In this regard, Reyes & Pizarro (2022) make an important review of the role of pharmacological therapy in ASD since the needs of patients are diverse and many of the drugs currently used to treat them also have side effects such as weight gain. . Thus, patients with ASD usually also present epilepsy and psychopathologies such as anxiety, self-harm, depression, hyperactivity, attention deficit, hyperactivity, behavioral alterations, develop tics, sleep problems, executive functions and eating that may require drugs at some stage (See Table 1).

Table 1.
Symptoms, comorbidity and pharmacology treatment in patients with ASD.

Condition	Drug available
Behavioral, catastrophic reaction, restlessness, self-harm.	Antipsychotics, anticonvulsants.
Sociability	Oxytocin, D-cycloserine, Memantine (experimental).
Sleep disorder	Melatonin, antipsychotics, anti-histamines.
ADHD – attention deficit disorder	ç Atomoxetine, methylphenidate, amphetamines, desmethylamphetamines, guanfacine.
Tics	Antipsychotics, α2 agonists, SSRIs.
depression	SSRI, SNRI+antipsychotics.
Bipolar disorder	Antipsychotics, lithium.
Anxiety and OCD	SSRI (high doses), pregabalin.
Seizures	Valproic acid, levetiracetam, lamotrigine.
psychosis	Antipsychotics.
Gastrointestinal disorders	Probiotics.

Source: Own elaboration based on Reyes & Pizarro (2022).

Duarte et. al (2022) contribute from the importance of psychosexual training since they allude that these allow guidance for both parents and children and adolescents with autism, for this they work with the Tackling Teenage Training (TTT) program whose development dates back to the year 2011. This focuses on the segment between 12 and 18 years old with ASD, but who also have an IQ equivalent to 80 or higher than this value. We work with 18 sessions a week individually, for a period of 6 months, with interventions focused on psychoeducation and communication related to sexuality, intimate relationships, emotions during puberty, falling in love, pregnancy, among others.

For researchers, psychosexual interventions in adolescents with ASD who complete the TTT program have shown representative improvements regarding the understanding of limitations between people, social functioning, a reduction in aggressive or problematic sexual behaviors and less concern about the future. . This makes the program effective, although they warn of the need for further research to determine if individuals are capable of putting into practice the knowledge they have acquired, if victimization is reduced, and if they manage to develop sentimental relational skills (Duarte et al.., 2022).

On the other hand, Grañana (2022) mentions three lines of treatment according to their clinical effectiveness, thus considering the one considered usual, one effective and another called optimal. The first is usually the general one in which children with ASD only receive 10 or fewer weekly therapeutic sessions without specialization, so the results were not good. It is known in this regard that only 3% of cases reached the development of an autonomous life, in addition 2 out of every 3 cases demanded hospitalization due to behavioral problems. This type of treatment continues to be used throughout Latin America. The effective treatment in which the applied behavioral analysis (ABA) model is used in addition to TEACH demonstrated favorable results by improving communication in children with ASD, as well as their social skills and behavior. In this case, the records show that 15% of the cases achieved an autonomous life, approximately 30% or less had to be hospitalized due to their behavior and even almost half of the children were able to complete their studies.

Regarding the optimal treatment, in which the integrative cognitive behavioral module (MICC) is used, it uses behavioral, cognitive and naturalistic evolutionary, neurolinguistic interventions, complementary actions, as well as workshops for parents. In this case, parents and educators are involved, who together with therapists carry out systematic control. Thus, 40% of cases have achieved autonomous living and 50% have completed their school studies, being able to complete high school and university, while the level of institutionalization is less than 10%. It is necessary to mention that the optimal treatment includes 10 hours a week of intensive behavioral work and 10 hours for inclusive school work (Grañana, 2022).

In the school context there are also important practices that are worth mentioning, since according to Schmidt et. al (2022) the pedagogical methodological intervention strategies for students with ASD are of great help for them, but also for their educators and parents. Thus, in their research they identified 8 evidence-based practices, that is, they correspond to actions derived from the integration of inquiry at a clinical level, students' values and evidence from studies during their educational process. The practices indicated by the authors are visual support, combined visual support and reinforcement, naturalistic intervention, prompts, task analysis, peer-mediated instructions, antecedent-based intervention, and picture exchange communication system (PECS). These strategic practices are presented below in Table 2.
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Table 2.
Pedagogical intervention practices in children with ASD.

Práctice	Description
Visual support	Use of specific signs to indicate activities, routines, demonstrate actions. They are used in place of verbal signals. They include objects, photographs, written words, teaching materials, adjustments to the environment, labels, etc.

visual reinforcement	Allows better understanding of verbal indications or instructions. They are carried out using cards with pictograms that demonstrate the sequence of activities.
Naturalistic intervention	Strategic actions for teaching specific skills in uncontrolled environments (home, school). Considers foundations of applied behavior analysis (ABA). It involves the identification of routines and activities (model) with the goal of achieving the target behavior.
Indications	Assistance through visual, gestural or physical means to support learning.
Task analysis	It consists of teaching an activity in steps, that is, the task is broken down into small actions that are taught individually and then joined sequentially to achieve the execution of a complex behavior. .
Peer-mediated instruction and intervention	They are positive and meaningful social interventions. The educator tells the other students about the conditions and characterization of the student with autism and the way in which they can intervene with him with activities that promote social skills.
Background-based intervention	It is based on the evidence that precedes an activity to modify the environment so that inappropriate behavior(s) are reduced and positive ones are increased.
Picture Exchange Communication System (PECS)	Through the use of images/symbols, students learn to communicate with other people, their objective is functional.

Herrera et. al (2022) refer instead to an essential aspect that, although it is not a therapy, it is a form of intervention, since it also includes a strategic way of acting that consists of functional nutrition through diets without gluten or casein, aimed at providing relief to gastrointestinal problems suffered by children with autism. And the main disorders they usually present are diarrhea, constipation, abdominal pain and flatulence in 58% of cases, for which prebiotic/probiotic food supplements are used. These help regulate the intestinal microbiota of patients, increase the production of short-chain fatty acids, are also stimulators for the production of colonic mucus, allow better spontaneous tolerance to food and make pathogenic bacteria lose effectiveness. Despite this, the researcher exposes the need for more controlled studies to obtain results from this type of therapeutic interventions with individuals with ASD.

There is also the approach of Torres et. al (2021) to intervene in cases of ASD through sensory integration therapy (SIT) as the majority of cases present conditions of hypersensitivity or hyposensitivity. In this sense, the findings of their study suggest that in some cases there is talk of the effectiveness of the therapy, notably improving sensory and motor skills, increasing food alternatives, progress in communication and language development. This type of intervention is carried out through adjustments to the environment, being able to minimize clutter, noise and other distractions. Elements are even used that contribute to better control of the space in which the child operates with the intention of eliminating the child's stimuli.

From another approach, in an analysis referring to the effectiveness of the techniques used to intervene in children with autism spectrum disorder carried out by Hernández (2020), the researcher suggests that psychodynamic models lack effectiveness; while those of a biomedical type can be effective against certain symptoms such as epilepsy; and states that psychoeducational therapies are more effective by focusing on behavioral actions through behavior modification techniques (ABA), in addition to communication therapies (Theory of Mind, SAAC, Total Communication, PECS), sensorimotor (Auditory-Sensory

Integration) or mixed therapies. (TEACH/Denver), and also includes an evolutionary therapeutic approach that is based on actions to improve communication through play (DIR Floortime).

Thus, he determined that the ABA technique, that is, applied behavior analysis, contributes to improving behavior and communication, but also contributes to increasing the subject's intelligence. In the case of the TEACCH technique, it is identified that it equally favors behavioral and emotional levels, but does not enhance the autonomy of the individual as it is expected to do. Regarding the intervention model in Theory of Mind, this improves the understanding that the person has regarding their mental states and those aspects that are similar and different from others, which is why it also favors social interaction, but is not recorded. an increase at the empathic level as it is proposed that it should do. For its part, PECS therapy fully fulfills its objective as it improves communication skills (Hernández, 2020).

Regarding the techniques for auditory integration, Hernández (2020) does not show findings that support their effectiveness, but he does refer information in relation to sensory integration indicating that they allow better processing of the senses, behavior and socio-emotional skills, although admits the need for further investigation in this area. Furthermore, it explains that, regarding techniques to modify behavior and those of total communication, there is not enough evidence to support their effectiveness in reducing behaviors maladaptive. Added to this is an important contribution, as it adds that animal-assisted therapy (complementary technique) has great benefits by demonstrating evident improvements in communication skills.
Continuing with the line of research on complementary techniques is the review by Sánchez et. al (2021) who investigated the results of studies in which interventions based on play, music, use of technology, Qigong massage, yoga, assistance with animals (horses, dogs), technical neuro modulation, Kata, electro acupuncture, wet form therapeutic body wraps and Zen Shiatsu. Being able to identify that in the majority of research with complementary therapies there were improvements in children with ASD in their social skills, but according to the technique, different findings are presented as can be seen in table 3.

Table 3.
Contributions of complementary therapies in ASD

Technique	Input
Game	Contribution to better communication and joint attention, social interactions, behavior and emotions, as well as control of activity schedules. Positive contribution to motor coordination and imitative attempts. Improves verbal and non-verbal behavior.
Músic	Increased verbal and imitative intent and eye contact. Greater concentration, joint attention and social skills. It affects speech (semantics, phonology, pragmatics and prosody).
Tecnology	It has a positive impact on imitative attempts. Better visualization has a positive impact on affective and non-verbal communication skills, as well as on the development of social tasks. Favors cognitive behavior .
Qigong Massage	Develops emotional bonds, minimizes stress, improves non-verbal and social communication skills.
Yoga	Imitative development, social and behavioral skills, also promotes concentration, reduces stress and anxiety, allows better processing through the senses and contributes to communicative development.

Assistance with animals	Contribution to adaptive and executive behavioral development, motor skills, greater attention and concentration.
Neuro modulation technique	Development of adaptive behavior, reducing irritable behaviors and hyperactivity, also favoring social and expressive behaviors.
Kata	Improvement in stereotypical behaviors.
Electro acupuncture	Promotes the understanding of language and self-care.
Wet Form Therapeutic Body Wraps	Helps reduce anxiety considerably
Zen Shiatsu	Stress levels are reduced.

As identified, the contributions of complementary therapies are diverse, however Sánchez et. al (2021) express the need to deepen their study. Furthermore, it is the decision of the parents together with the therapist to decide which of the alternatives is the most appropriate according to the child's case.

In another research, presented by Amaya (2020), he concludes that systemic family therapy, based on interventions with the family and behavioral redefinitions, is viable in that it contributes to the family environment in its functional development through adaptation to the diagnosis of the patient with autism. in addition to allowing the correct connection to meet your needs. With this intervention, the redefinition of behaviors is achieved and the child is guided towards responsible and attachment behaviors. This contributes to an improvement in behavior and social skills, emotional control and even the development of communication.
Abelenda & Rodríguez (2020) refer to their study on Ayres sensory integration (ASI), which is based on neuroplasticity. This technique works on those deficiencies detected in the assessment through self-directed play, adapted by the therapist so that the challenge is appropriate. Rodríguez & Gamboa (20249 the ASI promotes the active participation of children with ASD in social and functional activities that give them a great sensory experience individually. It is precisely the above that differentiates the ASI technique from other intervention models that work with sensations passively and through a single sensory channel. Even Ayres' sensory integration, in some studies, meets the standards of the Council for Exceptional Children, this entity has influence at an international level and develops guidelines that allow the analysis and standardization of evidence derived from intervention models in special education, so It is concluded that ASI applied in people with autism is a practice based on evidence.

Furthermore, it is necessary to mention physiotherapeutic activity in ASD, as an intervention technique of great relevance. Given this, the contribution of Zarraluqui et. al (2023) who report that physiotherapy focuses on the improvement of motor and physical abilities as it allows the recovery of tone, acquisition of coordination movements, correction of bizarre postures and motor clumsiness, as well as hyperactive, apathetic and power behaviors. achieve independence, recovering synchrony in movements and identification of the body scheme. It also focuses on the recovery of contractures derived from hypertonia, improvement of eye contact and attention.

Sánchez & Ordóñez (2019) for their part add that the intervention in ASD, being multidisciplinary, considers physiotherapy as an alternative to improve sensory-motor development, impacting behavior and social integration. Thus, in their findings, they identify that physiotherapy contributes significantly to improving stereotyped behavior, communication skills, language development, motor, social and emotional abilities, and also favors better posture, balance, coordination and attention, as well as the acquisition of skills. strength and muscle development.

Thus, once the review of the 14 studies has been carried out, a table is presented that summarizes the information collected from all the researchers, categorizing them by the type of intervention they propose for people with autism and the appropriate recommendations they make in this regard. (See table 4).

Table 4.
Synthesis of interventions in ASD

N°	Author - Year	Type of intervention addressed	Benefit	Recommendation
1	Flujas & Chávez, 2023	Behavioral intervention with ABA model	It reduces anxiety, improves communication and linguistic understanding, daily skills, individual autonomy, intelligence, social skills and adaptive behaviors.	Application in early stages. Intensive frequency.
2	Celis & Ochoa, 2022	Psychotherapy and psychopharmacology	Better behavior, increased sociability and communication skills. Controls symptoms derived from comorbidities and affective and behavioral disorders	Use of integrative therapies according to clinical criteria and patient need .
3	Reyes & Pizarro, 2022	*Pharmacological intervention	In the presence of epilepsy and psychopathologies such as anxiety, self-harm, depression, hyperactivity, attention deficit, hyperactivity, behavioral alterations, tics, sleep problems, executive functions and eating .	*It has side effects.
4	Duarte, Figueiredo & Caseiro, 2022	Psychosexual intervention	Understanding the limitations between people, social functioning, reduction in aggressive or problematic sexual behaviors and less concern for the future.	Use of the Tackling Teenage Training (TTT) program with 18 sessions per week in subjects aged 12 to 18 with IQ=80 or more.
5	Grañana, 2022	Habitual, effective and optimal intervention.	Better behavior, lower internment rate, achieves autonomous life and completion of school stage.	Use of the integrative cognitive behavioral module (MICC) with the involvement of parents, therapists and educators.
6	Schmidt, Finatto & Ferreira, 2022	Pedagogical methodological intervention (evidence-based practices)	Reduction of inappropriate behaviors, learning positive behaviors, anxiety control, language development, attention and concentration. Reduction of repetitive behaviors .	Visual support, combined visual support and reinforcement, naturalistic intervention, prompts, task analysis, peer-mediated instructions, antecedent-based intervention, and picture exchange communication system (PECS)
7	Herrera, Ramos, Jiménez, Campos,	* Functional nutrition	Regulates the intestinal microbiota, increases the production of short-chain fatty acids, improves food tolerance	Use of prebiotics/probiotics; functional feeding. * Further investigation into this topic.

	González & Wall, 2022		and loss of effectiveness of pathogenic bacteria.	
8	Torres, López & Rojas, 2021	Sensory Integration Therapy (SIT)	Improves sensory and motor skills, increase in food alternatives, progress in communication and language development.	Make adjustments to the environment and reduce stimuli and distractions.
9	Hernández, 2020	Psychodynamic, biomedical and psychoeducational intervention (ABA, PECS, TEACH, SAAC, DIR Floortime). *Sensory intervention. *Auditory integration .	Psychodynamics: ineffective. Biomedical: effectiveness in the face of certain symptoms. Psychoeducational: effectiveness in behavior modification, improves communication, attention and sensorimotor development.	*Further investigation into this topic.
10	Sánchez, Alcarza & López, 2021	Interventions with complementary techniques (game, music, use of technology, Qigong massage, yoga, assistance with animals, technical neuro modulation, Kata, electro acupuncture, wet therapeutic body wraps and Zen Shiatsu).	Improvements in general social skills .	*Further investigation into this topic. Joint therapist-parent decision on the appropriate alternative.
11	Amaya, 2020	Systemic family therapy.	Functional development of the family environment, redefinition of behaviors, responsibility and attachment behaviors	
12	Abelenda & Rodríguez, 2020	Ayres Sensory Integration (ASI).	Active participation in social and functional activities, acquisition of sensory experiences.	Using self-directed play .
13	Zarraluqui, Alejos, Mayor & Yus, 2023	Physiotherapy	Improves motor and physical abilities, recovery of synchrony in movements and identification of the body schema, better eye contact and attention.	
14	Sánchez & Ordóñez, 2019	Physiotherapy	Improves stereotypical behavior, communication skills, language development, motor, social and emotional abilities, better posture, balance, coordination, attention and muscle development.	

The contributions of the different researchers allow us to have a broad vision of the alternatives available when intervening in patients with autism spectrum disorder, however it is necessary to point out certain

aspects due to their importance and validity. For example, returning to what was stated by Sánchez & Ordóñez (2019) regarding the need for a multidisciplinary intervention, autism care can combine different alternatives, always evaluated by the therapist in agreement with the parents and, if necessary, other specialists from the opinion is required. Given this, the contributions of Flujas & Chávez (2023) are considered of great relevance; Grañana (2022) and Hernández (2020) who emphasize behavioral interventions due to their benefits in the subject's behavioral changes that are oriented towards achieving autonomy, this through models that must be applied in a planned and organized manner. with the support of parents, therapists and educators.

Now, there are specific cases in which people develop comorbidities or other disorders that require attention, for this the contributions of researchers such as Celis & Ochoa (2022) and Reyes & Pizarro (2022) who refer to the use of drugs are valid as long as these usually contribute to improving these conditions. Its use must be regulated by the specialist since it is also very important to consider that some drugs can cause side effects in the patient, as Reyes and Pizarro (2022) have also stated.

On the other hand, researchers such as Zarraluqui et. al (2023) and Sánchez & Ordóñez (2019), on the other hand, highlight the value of physiotherapy, and that this alternative allows patients to acquire better and greater mobility, however, the physiotherapist's evaluation, in each case, will be valuable for Identify what type of activities the child can develop and identify their limitations and how to overcome them. The fact that the subject improves his mobility, develops flexibility and improves his muscles will provide benefits to achieve autonomy, but this is just one more part of a joint work of several disciplines.

Added to this is the psychosexual intervention proposed by Duarte et. al (2022) and Amaya's systemic family therapy (2020) since in both cases it contributes to improving a condition of the individual with ASD. The research of Duarte et. al (2022) highlights the importance of addressing sexuality in the subject with autism, this contributes to the understanding and acceptance of oneself and others, allowing relationships to also improve and the person to have development within normal parameters. While Amaya (2020) makes working with the family relevant, since it is essential for the child since it acts as a support and close environment where they receive affection, recognition, protection and feel safe. Precisely for the same reason it is important to work with the family, because they are also affected by a diagnosis of ASD since they must learn to live with the child and their conditions.
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Finally, the contribution of Herrera et. al (2022) since it is known that children with ASD present problems with eating, especially the tendency to prefer certain foods over others and thus limit the intake of a variety of nutritious products. In this sense, functional food is a great alternative because it is not only about using supplements to complement nutritional deficiencies, but it is the intake of products that are beneficial for health such as probiotics that are made up of live microorganisms capable of improving certain intestinal conditions and allow foods to be better tolerated, thus reducing gastrointestinal conditions.

So, as can be seen, the combination of different intervention approaches can be very valuable to help the child with ASD improve many of the conditions they present, however their choice and combination will be subject to the recommendation of the health professional based on each case. . It should be noted that alternative therapies are not rejected despite having little information on their effectiveness, since important beneficial results have been found in case studies or small populations, so their choice may be considered among the intervention options, but always adequately guided and supported by other methods with greater scientific support.

4. CONCLUSIÓN

Autism spectrum disorder has been more prevalent in recent years, which is why this condition has become visible worldwide, so that society has increasingly become aware of the needs and challenges for individuals with autism as well as for the family. In this sense, the research carried out has proposed a systematic review

of studies that they address intervention techniques in ASD from different approaches such as psychotherapy, pharmacology and alternative therapies. The findings denote important contributions to the improvement of the behavior of children with ASD, as well as the development of social, communicative, affective, and relational skills; in addition to improvement in attention and concentration, development of verbal and non-verbal language, execution of activities independently and better integration with the family.

However, not all methods contribute in the same way or allow achieving improvement in all the aforementioned aspects; Each of them provides specific benefits and researchers are clear that these will be reflected depending on each case of autism, since we cannot speak of generalized results but at least we can refer to important achievements in representative segments of children with ASD. It is also necessary to consider that the interventions are not carried out alone, that is to say that integrated actions of different techniques are generally developed to obtain better results depending on the case of application. Given this, it is important that parents, together with the therapist, make the relevant decisions about the most appropriate alternatives for the child.

On the other hand, the integration of the family, therapists and educators is very important to achieve significant improvements in the conditions of the child with autism, since the integration of these actors will allow constant supervision of their performance and progress, in addition to the due stimuli that will keep them on the right path for their integral development and towards the achievement of their autonomy, which is what is ultimately sought to achieve a better living condition and be able to access all the opportunities that society offers such as health, education, work, distraction.

The review has also made it possible to recognize the importance of continuing to develop research related to autism and forms of intervention since some methods still lack sufficient records to guarantee their validity, despite this they are not discarded or detracted from the results of the studies carried out. , since they constitute important references and starting points for new investigations.

REFERENCIAS BIBLIOGRÁFICAS

Abelenda, A., & Rodríguez, E. (2020). Scientific evidence of sensory integration as an approach to occupational therapy in autism. Medicine (Buenos Aires), 80(2), 41-46. https://pubmed.ncbi.nlm.nih.gov/32150712/

Amaya, G. (2020). Efficacy of Systemic Family Therapy in children with Autism Spectrum Disorder (ASD). SEK International University, 1(1), 1-13. https://repositorio.uisek.edu.ec/bitstream/123456789/3759/1/Art%C3%ADculo%20Amaya%20Acurio%20Gonzalo%C2%A0C..pdf

American Psychiatric Association. (2014). Reference guide to the DSM-5™ diagnostic criteria. Chicago: American Psychiatric Association. https://www.eafit.edu.co/ninos/reddelaspreguntas/Documents/dsm-v-guia-consulta-manual-diagnostico-estadistico-trastornos-mentales.pdf

Celis, G., & Ochoa, M. (2022). Autism spectrum disorder (ASD). Journal of the Faculty of Medicine (Mexico), 65(1). https://doi.org/10.22201/fm.24484865e.2022.65.1.02

Codina, L. (2020). How to do traditional or systematic literature reviews using academic databases. ORL Magazine, 11(2), 139-153. https://dx.doi.org/10.14201/orl.22977

Duarte, L., Figueiredo, R., & Caseiro, J. (2022). Psychosexual education and training for adolescents with autism spectrum disorder: A systematic review. Nascer and Crescer, 31(2), 123-129. doi:10.25753/BirthGrowthMJ.v31.i2.24777

Fernández, J. (2021). A return to autism in psychoanalysis. Buenos Aires: Letra Viva. https://www.letravivalibros.com/producto/una-vuelta-en-torno-al-autismo-en-psicoanalisis/

Flujas, J., & Chávez, M. G. (2023). Effectiveness of psychological interventions in autism spectrum disorder: a systematic review of meta-analyses and systematic reviews. Journal of Clinical Psychology with Children and Adolescents, 10(1), 99-115. doi:10.21134/rpcna.2023.10.1.9

Grañana, N. (2022). Autism spectrum: a tailored intervention proposal, based on evidence. Las Condes Clinical Medical Journal, 33(4), 414-423. doi:doi.org/10.1016/j.rmclc.2022.06.006

Hernandez, E. (2020). Efficacy of intervention techniques used in children with ASD. Mérida: University of Valladolid. https://uvadoc.uva.es/bitstream/handle/10324/48098/TFG-M-L2343.pdf;jsessionid=93387F4196AB487819051A69708578F3?sequence=1

Hernández, I., Omaña, A., Conde, J., Rodríguez, J., Díaz, G., Moya, A., & López, L. (2023). Nutrition status and food consumption frequency of children with autism spectrum disorder. Hospital Nutrition, 40(2), 347-353. https://dx.doi.org/10.20960/nh.04258

Herrera, J., Ramos, A., Jiménez, F., Campos, R., González, A., & Wall, A. (2022). Functional nutrition to correct gastrointestinal disorders associated with autism spectrum disorders: a systematic review. Hospital Nutrition, 39(3), 663-677. https://dx.doi.org/10.20960/nh.03898

World Health Organization. (2019). International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10). Geneva: World Health Organization.

World Health Organization. (2023). Autism. Geneva: World Health Organization. https://www.who.int/es/news-room/fact-sheets/detail/autism-spectrum-disorders

Reyes, E., & Pizarro, L. (2022). Role of pharmacological therapy in autism spectrum disorders. Las Condes Clinical Medical Journal, 33(4), 387-399. doi:10.1016/j.rmclc.2022.07.002

Rodríguez Estrella, D. A., & Gamboa Guerrero, S. J. (2024). La Potenciación de la Atención en Estudiantes con TDAH a través de Metodologías Activas e Inclusiva. Sapiens International Multidisciplinary Journal, 1(1), 43-60. https://revistasapiensec.com/index.php/sapiens/article/view/4

Sánchez, D., & Ordóñez, L. (2019). Physiotherapeutic interventions in autism: ASD. Venezuelan Archives of Pharmacology and Therapeutics, 38(4), 412-416. https://www.revistaavft.com/images/revistas/2019/avft_4_2019/5_intervenciones.pdf

Sánchez, N., Alcaraz, T., & López, M. (2021). Use of complementary techniques in children with autism spectrum disorders: a systematic review. Therapeía, 1(14), 45-77. https://revistas.ucv.es/therapeia/index.php/therapeia/article/view/859

Schmidt, C., Finatto, M., & Ferreira, L. (2022). Specialized educational service and autism: an approach to evidence-based practices. SciELO Preprints, 1-16. https://doi.org/10.1590/SciELOPreprints.3990

Torres, S., López, V., & Rojas, J. (2021). Sensory integration therapy in autism spectrum disorder: a systematic review. Ajayu Scientific Dissemination Body of the Department of Psychology UCBSP, 19(1), 1-19. http://www.scielo.org.bo/scielo.php?script=sci_arttext&pid=S2077-21612021000100001

Zarraluqui, I., Alejos, L., Mayor, A., & Yus, A. (2023). Role of physical therapy in autism spectrum disorder (ASD). Health Research Journal, 4(2), 1-10. https://dialnet.unirioja.es/servlet/articulo?codigo=8854173

Conflicto de Intereses: Los autores afirman que no existen conflictos de intereses en este estudio y que se han seguido éticamente los procesos establecidos por esta revista. Además, aseguran que este trabajo no ha sido publicado parcial ni totalmente en ninguna otra revista.