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Analysis of Quality of Life of Autistic Students on the Canary Islands during the COVID-19 Pandemic and the Educational Response Offered

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Abstract: The COVID-19 pandemic caused the closure of educational centers, forcing the teaching–learning process to become virtual at all levels of the educational system. The main objective of this study was to describe and analyze how students with autism spectrum disorder (ASD) and their parents perceived their quality of life and the educational response offered during the COVID-19 pandemic. This study was conducted with 50 students with grade 1 ASD, aged 8–11 years, and their parents. The methodology used was qualitative and descriptive, with semi-structured, individual interviews. The data were analyzed using the **MAXQDA** 2020 program. The results show that students with ASD state that they need social contact and that the fact of not experiencing it, as occurred during the COVID-19 situation, had a negative impact on their perception of their quality of life, as well as the perception of their parents, significantly affecting their emotional well-being. Likewise, it was detected that both students with ASD and their parents perceived that the educational response was inadequate during that period.

Keywords: autism spectrum disorder; primary education; COVID-19; teaching process; quality of life; parents

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1. Introduction

Students with autism spectrum disorder (ASD) and their parents experienced uncertainty about the future during the COVID-19 pandemic, significantly impacting their quality of life [1]. In addition, negative effects on the socialization process were observed in these children; feelings of frustration, sadness, boredom, etc., arose, which especially affected this student body, considered as a vulnerable group [2].

This conception of vulnerability is due to the fact that ASD (which is considered a generalized developmental disorder) students are characterized by presenting permanent tendencies such as non-verbal communicative behaviors, difficulty with eye contact or body language in social interaction, and restricted and repetitive behavior patterns. ASD comprises a heterogeneous group of disorders, both in etiology and clinical presentation, that begin in childhood and last throughout life [3]. In recent years, the prevalence of ASD has increased significantly, especially in developed countries. This increase poses challenges in terms of needs for specialized services and educational intervention programs, as well as increased attention to research on its possible causes [4]. Even so, the prevalence of people with ASD is a topic under constant debate, due to the fact that the causes that give rise to this disorder are still unknown [5].

In the analysis of the situation of this population, it is important to pay special attention to quality of life, which is achieved when personal needs are satisfied and there

is the opportunity to improve well-being. Based on different studies, Schalock and Verdugo [6] propose a multidimensional approach consisting of eight dimensions: emotional well-being (EW) is assessed through factors such as satisfaction, self-concept, and absence of negative feelings; interpersonal relationships (IR) are measured by taking into account social relationships, family relationships, romantic relationships and sexuality, positive and rewarding contacts, and having identified friends; material well-being (MB) is determined by the indicators of housing, workplace, salary, possessions and savings; personal development (PD) is measured through limitations and capabilities, access to new technologies, learning opportunities, and functional and work-related skills; physical well-being (BF) is assessed through health care, sleep, health, daily activities, access to technical aids, and nutrition; self-determination (SD) includes indicators such as personal goals and preferences, decisions, autonomy, and choices; social inclusion (SI) is measured through integration, participation, accessibility, and support; rights (R) are assessed through privacy, respect, and knowledge and exercise of rights. Based on this analysis, the concept of quality of life refers to personal well-being and its relationship with life circumstances [7–9].

The quality of life of people with special educational needs (SEN) plays a fundamental role in development [10]. The understanding of quality of life in individuals with ASD is lower than that in individuals with other developmental disabilities [11]. Children and youth with ASD score worse in quality of life than typically developing children [12–14]. Furthermore, low quality of life scores not only affect children with ASD but also have an impact on family quality of life [15]. Similarly, parental stress can impair behavior, social skills, and emotional control in children with ASD [16,17]. Several studies have shown the need to attend to and support the family context of people with ASD to improve their evolution [18]. Analyzing the different dimensions that make up the concept of quality of life for the population with ASD, the emotional well-being dimension plays a critical role in the overall well-being of children with ASD, since they are at high risk of experiencing emotional and behavioral problems [19,20]. According to Kaat [21], approximately one in three children with ASD may manifest disruptive behavioral problems; they may also present comorbidities with other disorders such as anxiety, which has a significant impact on their quality of life.

Anxiety is recognized as one of the most common disorders associated with ASD. Adams [22] focused on the impact of elevated anxiety on the quality of life of children with ASD. The results revealed higher levels of anxiety in the social, emotional, physical, and school functioning domains. In addition, uncertainty has been highlighted as one of the most influential factors in the quality of life of these children.

Analyzing the situation during the COVID-19 pandemic, Thomas and Rogers [23] identified that it had a significant impact on the physical, emotional, and psychological health of these children by disrupting their daily routines, which resulted in emotional distress. This has manifested in the form of high levels of anxiety, stress, distress, irritability, and frustration, as well as the appearance of behavioral problems and difficulties in self-regulation [24–27]. Individuals with ASD often face significant difficulties in adapting to change as they rely heavily on fixed and predictable routines. Therefore, abrupt events such as the COVID-19 pandemic can have negative effects on physical and psychological well-being [28].

Physical well-being is positioned as an essential dimension in the quality of life of people with ASD. Studies such as those conducted by Cuesta [29] and Moscatelli [30] have provided evidence that physical activity can lead to improvements in the capacity for social interaction, communication, reduction in stereotyped behaviors, and the promotion of sports skills in children with ASD, with physical activity being of great utility in improving the quality of life of people with ASD [31]. Despite these demonstrated benefits, it is important to note that, in general, people with ASD tend to engage in less physical activity compared to their peers. Consequently, abrupt events, such as the COVID-19 pandemic, have had adverse effects on their physical and psychological well-being, as research, including that of Hernández, has revealed [28]. Physical well-being should also take into

account the difficulties that children with ASD present in externalizing their complaints, and in addition, the barriers faced by health professionals due to the poor training around ASD [32,33].

The *dimension of interpersonal relationships* stands out as one of the most relevant in the case of children with ASD [18,34]. The school environment stands as one of the fundamental contexts for the development of relationships and the social inclusion of children with ASD [35]. In particular, the space and time of recess are presented as exceptional situations for the socio-affective, cognitive, and motor development of students with ASD, representing crucial moments for these children to interact with their peers, as emphasized by Rodriguez-Medina [36]. Dyches et al. [37] allude that having the emotional support of a peer at home helps to cope with stress. In this sense, the limited participation of students with ASD in recreational and leisure spaces can make it difficult to establish interpersonal relationships [38].

Children with ASD often face difficulties in social interaction and communication, which highlights the importance of having adequate support, as emphasized by Rodríguez-Medina [36]. Morán [39] conducted a study that assessed interpersonal relationships in children with ASD. The results revealed that the highest scores in this dimension were observed in children who maintained good communication and relationships with their families, as well as in those who attended regular schools. Based on these findings, the authors emphasize the importance of having support and good professional practices to promote interpersonal relationships in children with ASD.

Regarding the *dimension of personal development and activities*, Simpson [40] noted that children with ASD tend to participate in fewer leisure activities compared to their peers. Mira [16] conducted research showing that children with ASD from families more vulnerable from a socio-demographic perspective, and with a negative family environment, have greater behavioral and emotional problems.

In order to understand the quality of life of people with ASD, their families are key informants; this is why there are several studies that analyze the quality of life of students with ASD through their families. Cholewicki's study [41], conducted before the situation of confinement caused by COVID-19, corroborated that families affirmed that their children had a good-to-excellent quality of life. In the same study, after COVID-19 confinement, Mohadeb [42], Zambrano-Mendoza and Lescay-Blanco [10] found from the parents' assessment that the quality of life of children with ASD is now perceived as negative.

In relation to the educational situation, the pandemic caused by COVID-19 during 2020 jeopardized the right to education in the world's educational systems after the widespread closure of schools [43]. The educational response offered from educational centers was remote or online education, demanding from all participants (educational centers, teachers, families, and students) specific resources and knowledge of education through information and communication technology (ICT). Sanz-Ponce and López-Luján [44] stated that the result of the educational response provided has resulted in a loss of learning, a lack of development of certain basic skills, emotional and psychological problems, etc. [45]. The reality is that the educational response for students during the confinement varied depending on the reality of each educational center, although the responses can be grouped as follows: the use of virtual platforms (providing students with materials and activities for different subjects); online resources (digital books, worksheets); advice from educational and psycho-pedagogical guidance teams (advice on establishing routines, stories, plans for dealing with quarantine, guidance for families, pictograms, and games); and electronic communication (e-mail, video conferences, etc.) [46]. However, the educational response in a situation such as this should effectively and equitably address the needs of all students, following an inclusive approach. According to Ainscow and Miles [47], an inclusive approach focuses on creating learning environments that respond to student diversity, including those with specific educational support needs (SESN).

Regarding the ICT use dimension, Vega [48] concluded that despite the increase in the digital gap among students with SESN and SEN, innovation has been encouraged, allowing students to become familiar with the use of communication networks, thus contributing to both their learning and their social inclusion. This is substantial, as ICT is an essential and indispensable tool for meeting the training needs of these students [49].

Objectives

The general objective of this study was to describe and analyze the way in which students with autism spectrum disorder (ASD) and their parents perceived quality of life and the educational response offered during COVID-19.

From this general objective, specific objectives related to the different dimensions of quality of life were raised in order to understand the following:

- The emotional, physical, and material well-being of children with ASD from their own perception and that of their parents.
- The interpersonal relationships of children with ASD based on their own and their parents' perceptions.
- How the teaching–learning process developed from their parents' perspectives.
- The use of ICT from their own and their parents' perspectives.

2. Materials and Methods

This was a descriptive, qualitative study. After obtaining the code of ethics (CEIBA2021-0462), approved on 21 April 2021, permission was obtained to conduct the interviews. The ethical considerations of the study included confidentiality of the data and gathering the participants' informed consent for the interviews and the recording of the interviews, and maintaining anonymity, confidentiality, and the right to withdraw from the research at any time.

2.1. Participants

The study participants were students with ASD who, according to the DSM-V classification, were grade 1. These students required specific support to alleviate their social communication problems. If this support is inadequate, they may present difficulties in initiating social interactions and have inadequate responses in their interactions [3,50]. The participants were selected from a group of grade 1 ASD students that received the necessary support. Thus, the sample consisted of 50 students, of whom 80% (n = 40) were boys and 20% (n = 10) were girls (see Figure 1). They were aged between 8 and 11 years (see Figure 2) (M = 9.5 years). Of these children, 48% (n = 24) were in the second cycle of primary school and 52% (n = 26) were in the third cycle of primary school, and attended different schools on the island of Tenerife. The parents comprised 50 families. shows the parents' levels of education: 8% (n = 4) had completed primary education, 22% (n = 11) had completed secondary education, 70% (n = 35) had completed higher education, and 0% (n = 0) had no education.

2.2. Instruments

The instrument used for the collection of information was a semi-structured interview of our own elaboration, which aimed to inquire about the quality of life of students with ASD during the pandemic, as well as the educational response from the point of view of parents and the self-perception of the students. The interview was elaborated considering the dimensions of the quality of life model of Schalock and Verdugo [6] that respond to the objectives of this study: emotional well-being, interpersonal relationships, personal development and activities, physical well-being, and material well-being. To explore the educational response that had been offered to students with ASD in that period, two dimensions were added (use of ICT and teaching–learning process). In addition, sociodemographic data were collected: age, sex, and school year. See Table 1.

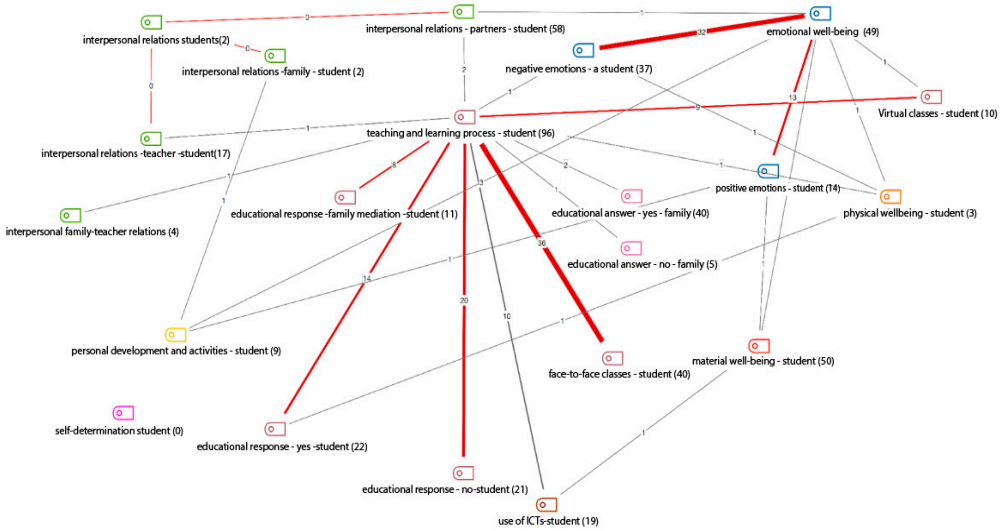

Figure 1. Categories and codes of ASD students.

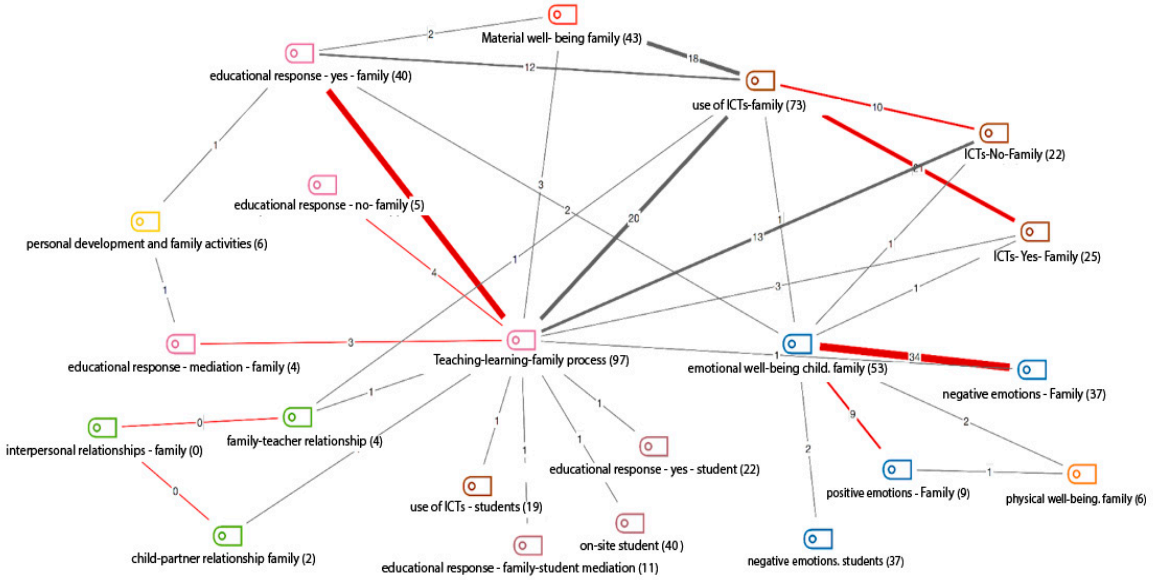

Figure 2. Categories and codes for parents.

2.3. Procedure

Data collection was carried out by specialized and trained staff (MCRJ and IPA) to ensure the reliability of the results. Pre-interview preparation sessions were conducted prior to the interviews to ensure consistency in the data collection. Ongoing monitoring was established through regular meetings to address issues and resolve disagreements, and to ensure consistency throughout the process. Interviews with parents and children were conducted continuously over a period of three months. Each interview lasted approximately 30 min and was recorded for later transcription. An analysis of the content of the interviews was carried out based on the data obtained, thus contributing to the robustness and validity of this study.

Table 1. Dimensions and questions to students with ASD and their parents.

Dimensions	Questions Students with ASD	Questions Parents
Emotional Well-Being	Do you remember how you felt when we had to stay at home without being able to go outside or go to school?	During the period of confinement, how would you describe your child's emotional state? What emotional changes or challenges have you noticed in your child during this time?
Physical Well-Being	How did you feel especially when we were homebound and could not go outside or go to school? Were there any changes in your health or how did you feel physically?	During the period of confinement, how would you describe your child's physical condition? Did you observe any noticeable changes in your child's physical condition?
Interpersonal Relationships	How did you relate to your peers during the period when you were at home, not attending school?	How did you relate to your peers during the period when you were at home, not attending school?
Personal Development and Activities	When you were not doing schoolwork, what types of activities did you do at home during the confinement?	What types of leisure activities did your child engage in at home during confinement?
Material Well-being	Did you get the right material means to access online classes (computer, tablet, internet, wifi)?	What material did you have at home for your child to access online classes (computer, tablet, internet, wifi)?
Teaching–Learning Process	How did you receive the classes (platform, email? What do you prefer to go to school or receive the online classes? Did you learn a lot during the time you did not go to school? How did you receive the classes?	How did your child's classes go during the confinement? Can you describe the dynamics? What is your opinion regarding the educational response given to your child during the confinement?
Use of ICT	What do you think about the virtual classes you had during the confinement?	Do you consider that the use of ICTs has favored your child's access to and process of distance education? In what way?

2.4. Data Analysis

Data were analyzed using MAXQDA 2020 (VERBI GmbH, Berlin, Germany). This program allows the analysis of qualitative data on the basis of the categorization of discursive elements. It should be noted that it is an analytical tool that allows us to work directly on content. Data analysis was performed using a content analysis approach according to Graneheim and Lundman's seven-step method [51,52]. Interviews were transcribed into text files and responses were coded by assigning codes to the document segments. Similar units of meaning were coded using the same label and color. After coding, the entire text was reviewed. Codes were compared for similarities and differences and then classified into categories and subcategories. The categories were grouped according to the seven dimensions mentioned above. Finally, a graphical representation model of the co-occurrence of codes was selected to understand the relationship between the two codes. Figures 1 and 2 show the different forms of relationships between the categories with the thickness, which represents the frequency, and the colors of the lines, which represent the linkages of the subcodes to the main code of each category.

3. Results

The findings are presented in two sections: students with ASD and their parents.

3.1. Quality of Life and Educational Response of Students with ASD from Their Self-Perception

3.1.1. Emotional Well-Being

This dimension is subdivided into two categories (negative and positive emotions).

When students with ASD were asked about their emotional state in confinement, out of 50 coded meaning units, 12 were positive and 37 were negative and related to other categories.

The categories that most influenced their emotional state were personal development and activities and interpersonal relationships with peers.

"...I felt sad and bored because I couldn't see my classmates..." A30

"...Sad because I couldn't go out in the street..." A45

"...well, because I did a lot of thing..." A32

3.1.2. Physical Well-Being

In this dimension, three units of meaning were obtained related to the COVID-19 disease and to the teaching–learning process.

The students expressed physical discomfort associated with symptoms related to infection. On the other hand, the relationship with the teaching–learning process was due to the fact that the way in which the classes were developed generated discomfort.

"...bad flu..." A20

"...I stopped attending because everyone was talking at the same time, and I had headaches..." A13

3.1.3. Material Well-Being

In this dimension, students were asked if they had resources to follow online classes and perform tasks (computer, tablet, or cell phone). Of the 50 units of meaning obtained, 10 reflected that they had a computer, 7 had a cell phone, 11 had a tablet, and 22 had several devices to access online classes.

"...only my mother had WhatsApp..." A4

"...I did my homework on the ipad..." A19

3.1.4. Interpersonal Relationships

From this dimension, three categories were extracted (student–family, student–teacher, and student–student). Of the 58 units of meaning, 2 mentioned interaction with their family, 17 with the teachers, and 39 showed a relationship with their peers, showing that students with ASD interacted with their peers.

"...I did not talk to my classmates; I waited until the confinement was over." A33

"...I like to go to school because I see my friend [...] on the computer; I only see my friends there and I cannot play, and she lectures me for many hours." A13

3.1.5. Teaching–Learning Process

In this dimension, 93 units of meaning were recorded and analyzed according to two categories: "face-to-face or virtual classes" and the "type of educational response".

In relation to whether they prefer "virtual or face-to-face classes", 50 units of meaning were obtained. Of these, 40 indicated that they preferred face-to-face classes and 10 indicated that they preferred virtual.

"...virtual classes because it stresses me out a lot to be in class with many classmates..." A3

"I like going to school more because I see the faces of my classmates...". A14

"...I don't like going to school because the teacher gives me a lecture and I have to get up to walk to school..." A6

A total of 43 meaning units were obtained that responded to the question "type of educational response", out of which 21 meaning units indicated that the student body had not received attention, and 22 indicated that they had received some type of educational attention; of these, 11 meaning units were related to encouragement from parents to perform academic tasks, rather than from the center.

"...I didn't have classes. I think they sent me homework I don't remember..." A25

"...Mommy gave me homework..." A37

3.1.6. Use of ICT

In this dimension, 19 units of meaning were coded that reflected that the students who received some type of educational response affirmed that they mainly used the classroom, video calls, and e-mails to access the classes.

"...classes were by video call some days..." A17

3.2. Quality of Life and Educational Response of Students with ASD as Perceived by Parents

3.2.1. Emotional Well-Being

This dimension was subdivided into two coding categories (negative and positive emotions).

Among the parents' responses, 53 meaning units were found, of which 37 indicated that the emotional state was negative (that is, they manifested emotions such as sadness, confusion, anxiety, etc.) and 16 expressed that they felt positive emotions (calmness, contentment, happiness, etc.).

"...sad, nervous, and very anxious..." FAM35

"...nervous, dazed and sad..." FAM48

3.2.2. Physical Well-Being

In this dimension, few responses were obtained; there were only six meaning units related to the physical state, which were also related to the emotional state dimension where negative emotions were expressed.

"... the physical, worse, for not eating or resting well..." FAM23

3.2.3. Material Well-Being

Regarding the material goods available to parents during the confinement, it was possible to evidence, through 43 meaning units, that most of them had at least one computer to be able to carry out classes. It should be noted that a minority did not even have internet at home or electronic devices to be able to receive classes.

"... we had no technical means, so we had to buy a computer..." FAM6

"... the tablet, they provided it, but we also had it at home..." FAM43

3.2.4. Interpersonal relationships

Fathers and mothers did not express in the interviews aspects related to their children's interpersonal relationships, so we found only 6 units of meaning.

"...although a couple of months passed, he missed his classmates..." FAM17

"...maintained telephone contact with the teacher..." FAM26

3.2.5. Teaching–Learning Process

Two categories were established in this dimension: educational response and mediation in the teaching–learning process on their part. Sixty units of meaning were established, of which forty confirmed that there was an educational response and five that there was not. Regarding parental mediation, 11 meaning units confirmed that they did intervene in the teaching–learning process, and 4 that they did not.

In addition, for educational response, parents mentioned the use of ICT, classrooms, and sending homework as central elements of the educational response their children received during the confinement.

"...there were some virtual classes, but mostly homework was sent..." FAM4

"...they sent homework through the platform and few online classes..." FAM5

"...sporadic virtual classes, and there was no continuity..." FAM7

3.2.6. Use of ICT

This dimension was coded by establishing two categories: whether ICT was used and whether parents favored the E-A process.

Of the 73 meaning units collected, 25 corroborated the use of ICT and 22 did not. Regarding whether they favored the teaching–learning process, 18 said yes and 8 said no; the rest of the participants did not take a position on the matter.

> "...in my case the use of ICT has not favored the teaching-learning process..." FAM20

> "...it seems that with the tablet and the computer he pays more attention..." FAM2

> "...no, we were overwhelmed..." FAM7

> "...no, in the case of my son who is autistic, face-to-face classes are better..." FAM5

4. Discussion

The pandemic has uncovered several significant challenges in the education system. This highlights the urgent need to ensure equal opportunities for all students including those with ASD.

Several studies have confirmed that the educational response during the COVID-19 pandemic was inadequate [44,53]. This situation was aggravated in the case of students with ASD. It was found that the attention given to these students was not individualized or specific, which was confirmed in this study [49,54,55]. The type of educational response implemented by educational centers affected the quality of life of these students; after the analysis of seven dimensions, it became evident that the response focused on sending homework through different platforms and e-mails, and sporadic video calls. This did not foster relationships between students, and in this case, between students with ASD and their peers, thus affecting their quality of life. The quality of life of students with ASD before confinement was perceived as good or excellent [41]. When analyzing the different dimensions of quality of life in this study, it was observed that the dimensions of interpersonal relationships and emotional well-being most affected the quality of life of students with ASD. The results of this study are in line with those obtained by Mohadeb [42] and Zambrano-Mendoza and Lescay-Blanco [10], who reported that quality of life is perceived as poor.

The responses of these students regarding their interpersonal relationships indicated that they missed their peers and, thus, their relationships with them [50].

When analyzing the parents' responses in the dimension of interpersonal relationships, on the one hand, it is important to observe how parents did not typically mention their children's lack of contact with their peers as a problem; this is an aspect that is a known issue in the ASD population, since to a greater or lesser extent they have problems with interpersonal relationships and social contact [36,38]. On the other hand, it is noticeable that they expressed more concern about the "teaching-learning" process during the pandemic in relation to the acquisition of curricular competencies. This finding can be explained by O'Hagan and Hebron [56], who found that students with high-functioning ASD (grade 1) do understand friendships, for example, although parents often perceive this understanding as theoretical and not correlated with their own experiences, evidencing a discrepancy between the perception of the students with ASD themselves and their parents.

Peer relationships directly influence the emotional well-being of students with ASD. This contact is essential for the learning and development of these students, and the interruption of these relationships during periods of confinement has a negative impact on their self-perception of their emotional well-being. This result is explained by the fact that the school environment is a fundamental context for the development of friendships and social inclusion for students with ASD [35,56].

Regarding physical well-being, it is known that students with ASD have difficulties externalizing their ailments [32,33], which is reflected in the fact that when analyzing this dimension, few references were obtained from the students themselves. This fact is reaffirmed by what the parents reflected in relation to this dimension. Students with ASD only referred to physical well-being to state that they were infected with COVID-19.

This study highlights the importance of addressing inclusive education more effectively and ensuring that all students, regardless of their needs, have access to quality education. The pandemic has been a reminder that equality of opportunity is essential and that we must work together to overcome challenges and create a more inclusive and equitable educational environment for all, including students with ASD.

5. Conclusions

This study helps to identify the particular difficulties and needs of students with ASD. The main finding of this study was that the emotional state of pupils with ASD was negatively affected by a lack of contact with their peers. In terms of educational response, families with fewer resources were more affected during confinement which therefore affected their children's educational response, regardless of the actions of the center. However, ICT use did not facilitate access to school content, although it did have a positive impact on interpersonal relationships. Based on the experiences and situations of students with ASD and their parents, it is concluded that more work is needed to improve inclusive education.

The pandemic has reminded us that equality in education is not just a concept but a fundamental right that must be guaranteed. Students with ASD deserve the same access to quality education as any other student, and it is our duty as a society to ensure that this happens.

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Institutional Review Board Statement: The Ethical Committee of University of La Laguna approved this study (reference number CEIBA2021-0462). All participants were treated according to the Declaration of Helsinki (1964-2013); they were informed about their involvement in developing the questionnaire and their rights and gave informed consent to participate. To preserve privacy, all statistical analyses were conducted on anonymized data.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due for privacy reasons and are available from the corresponding author upon reasonable request.

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