

Differential Diagnosis of ASD for Children Under 36 Months Old: A clinical study of three 3 cases aged less than 36 months old.

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Abstract:

The diagnostic procedure of autism spectrum disorder is very sensitive, particularly in early childhood. Professionals usually find themselves in a stressful situation. A practitioner's responsibility is even bigger and the majority of pedopsychiatrists and psychologists refuse to announce such a diagnosis. What we suggest in the present communication is the outcomes of the therapy of three children, all aged around 24 months, provided with a misdiagnosis of autism who, after 6 months of therapy, demonstrated no autistic sign. These children have raised the main problematic of the current study which revolves around the differential diagnosis of the young child. The research at hand arrived at the importance of an intensive therapy, and of differentiating between virtual autism and autism spectrum disorder.

Keywords: Autism spectrum disorder; ASD; diagnosis; differential diagnosis; early therapy.

1. INTRODUCTION

“Autism is a developmental disorder characterized by perturbations in the domains of reciprocal social interactions, of communication, and by behaviors, interests and activities of a restrained and repetitive nature.” (Organization, 1994)

The diagnosis of ASD relies on an array of clinical arguments collected in varied situations by different professionals. It is associated to an evaluation of disorders and capacities along with the research of associated illnesses. It is conducted in collaboration with the family. Up to today, no biological indicator, genetic test or any MRI can detect an ASD in a reliable manner.

It is highly recommended that the development of social communication consists the object of a systematic supervision throughout the three first years, within the framework of health tests before going to school, and in the same way regarding other aspects of the development. At the schooling age (preschool and primary), forms of autism with tardive expression are to be taken into account. It is recommended to be attentive with children having important difficulties in social interactions and exhibiting particularities in learning, let alone significant mental retardation. Particularly, the issue has witnessed more attention since the publication of the results of the research conducted on virtual autism by doctor (Zamfir, March, 2018) who, let us recall, introduced virtual autism among the categories to eliminate in the procedure of differential diagnosis. What we suggest to expose in the present communication are the results of a preliminary study of three cases misdiagnosed with autism spectrum disorder, while after a stimulation and an accurate observation accompanied with an evaluation at T0 and T1 (after 6 months from the beginning of the research) the autistic symptoms have clearly declined and have almost disappeared for certain cases. A significant evolution of all the capacities was noted.

2. Problematic

During the lectures of Psychopathology, we have been taught to recognize the signs, or more precisely the clinical charts (symptomatology and etiopathogenic factors) leading to the identification of psychopathological disorders. However, once the practitioner is in front of a 24-months-old child developing in an atypical way, and that the batteries of the psychological evaluation applied on that child reveal the presence of autism spectrum disorder, all the reassurance acquired during the lectures of Psychopathology vanishes. Announcing a diagnosis is never easeful, but when it comes to a young child it is hard, let alone announcing a diagnosis of autism to a young child almost aged 24 months, which is even harder. This is because it would shift the life of this child as well as the life of his/her whole family.

Nevertheless, recent discoveries in cognitive neurosciences have revealed that taking a child in charge early along with daily stimulation create an infinite number of synaptic connections, because the young child possesses an incredible potential of cerebral plasticity, which reminds us in this regard that cerebral plasticity "is the continuous and dynamic process of creation, reinforcement and elimination of synaptic connections. This process starts before birth and carries on with much strength in the first years of life during which it establishes the foundations of cerebral architecture. Afterwards, the plasticity diminishes progressively, with a clear decline at puberty. Yet, it continues to develop in adulthood. The brain continues to create new circuits in a constant manner (ALVAREZ, 2016)

One of the most astonishing discoveries is the brain's capacity of adapting to the events of life (Vidal, 2009). During learning and stimulations, it is the structure of the brain itself of a child which is modified, along with the establishment of new connections among neurons. Nothing is ever static in our neurons, whatever the phases of life. It is

indeed a revolution for the comprehension of the development of the child and particularly for the daily tasks of taking in charge children with ASD. Our vision of the brain is, therefore, that of a dynamic organ which evolves throughout life and particularly during the first years of a child's life, which necessitates starting a therapy as early as possible. However, the starting point of any therapy is the diagnosis without which no intensive work of stimulation is launched.

Hence, we go back to the diagnosis issue, which is the focal point of the research at hand. During the last few years, specialists agreed to claim that there is a multitude of tools, batteries and tests created to detect and diagnose autism at any age and particularly for the very young (under 36 months). These tests are accompanied with an accurate training, such as the one offered by Djilali Liyabes University since the last 3 years. It allows a diagnosis that respects the clinical procedure and its steps, despite that in the last few years a new form of disorder with a symptomatology very similar to the one of ASD came to light. This disorder, despite its appellation 'virtual autism' is still debated in the scientific arena, has clinical manifestations very close to the ones of autism, making the diagnosis of the latter even more difficult particularly for infants between 18 and 24 months. Unfortunately, several diagnostic errors are announced in the field. Numerous children find themselves labelled with a disorder that alters their relationships with their families and their environment. Some find themselves in centres that take in charge the 'mentally disabled', while others are left on their own, but for the luckiest cases an intensive stimulation endeavor is established by their parents and professionals in private practice (psychologists, speech therapists).

Given the aforementioned reasons and insights, our interest revolves around the problematic of differential diagnosis for the very young child. How to make sure of the ASD diagnosis for those less than 36 months old? Is the nosographic etiquette required at this stage of neural proliferation?

3. Hypotheses

- Intensive stimulation is a priority for the young child aged less than 36 months regardless the doubts which underlie the diagnosis.
- Only time and intensive stimulation are able to illuminate the paths of the differential diagnosis.
- We hypothesize in the current study that the nosographic etiquette would make no particular progress for the young child, who possesses a rich neurological potential and an infinite possibility of synaptic connections.

4. Methodology

In the current research, we favored the use of two methods. the first one is obviously the clinical method thanks to which we could start an endeavor of positive stimulation, and an individual construction procedure of a therapeutic project for each of the three cases. It should be recalled in this context that each of the three cases of the work at hand benefitted from an individual therapy, and a weekly individual and collective stimulation of 6 hours for psychology and 1 hour for speech therapy. In addition, parental guidance and a daily stimulation from the part of parents was undertaken throughout the process.

These three cases came to us after obtaining diagnoses of autism by several professionals in two different wilayas. We applied on these three cases the BECS protocol at the beginning of the treatment and after 6 months of stimulation. Based on the data collected during these clinical evaluations and thanks to the comparative method we established a comparative analysis between the two evaluations.

As a reminder, the clinical method is first and foremost "aimed to deal

with concrete situations of suffering cases and it has to focus on the case, that is individuality, but without revolving only around it. The "clinical method" is integrated in a practical activity targeting the recognition and the nomination of certain sates, aptitudes, behaviours in order to suggest a therapy (Psychotherapy for example), a measure of a social or educational nature or a form of advice allowing a help, a positive modification of the individual. The specificity of this method resides in the fact that it refuses to isolate these pieces of information and it tries to regroup them by re-placing them in individual dynamicity." (Lydia Fernandez, 2006)

5. Literature review:

The research of HAWKI Bouchra (Bouchra, june 2019) who was a literature review of all disorders who's similar or has some similar manifestations with ASD, and she presents in her study these syndromes : Aspergers syndrome, Syndrome de Tierernez syndrome, Syndrome of 'X fragile, Gilles de la Tourette Syndrome, Syndrome Landau kleffner, Syndrome Mobias, Kott Syndrome, Sotos Syndrome, Williams Syndrome, Vinyl Keto Neuri, PKU Phenyl ketonuria, Tuberos Sclerosos, as well as brain disorders Social and communication disorders, childhood schizophrenia, auditory and visual disorders, epilepsy, mental disability, as well as its relationship to ADHD and learning disabilities. Her study was intended to support the diagnosis of autism disorder, and to identify the similar disorders associated with this disorder.

The research of BELAZOUZ Fethia and DJABER Nacer Eddine (2020) who was about the differential diagnosis between autistic disorders and disphasia. The researchers' starting point was the same as the one that led us to our current research since the common point between our study and theirs was the diagnostic errors, that we unfortunately noted in centers. But unfortunately, like the previous research, it was a literature review with an analyze of the manifestations of ASD and disphasia. (BELAZOUZ & DJABER, 2020)

The research of WADA Fethi and TOUATI (2021) Ibrahim Aissa who was a review about the diagnosis and classifications in abnormal psychology, in this research the researchers underling the importance of the diagnosis who's a "fundamental stages in the process of psychotherapy. It is an important process that involves revealing the personality dynamics of the patient, which allows us to know the origin and nature of the mental illness which the individual suffers from based on certain clinical indications that can be detected through the use of certain tools, in order to classify and identify the type of psychological disorder. This is done on the basis of a diagnostic and taxonomic guide to arrive at a precise description of the problem and suggest the most appropriate therapy » (wada & Touati, 2021, p. 249). Unfortunately, in this research, we don't find any mention on the differential diagnosis and its importance in the diagnosis procedure.

These three previous researches are only an outline, of the most recent Algerian researches, in the field of the diagnosis of the ASD, which were published in the Algerian scientific journal platform ASJP, and as we could point out it precedes, all the research which we could read was purely theoretical research, with of course a considerable importance, but no empirical or clinical research with an objective evaluations, has been done to accurately assess diagnostic errors, or to clearly demonstrate the process of differential diagnosis in the diagnostic process of ASD.

Theoretical aspects

5.1. Diagnosis

The word "diagnosis" in the Larousse dictionary means: "identification of an illness based on its symptoms; by extension, analysis of the causes of a situation, judgement made about it (the diagnosis is concerned with the present)." (Larousse dictionary, s.d.). The diagnosis of autism spectrum disorder is, as described by (LEMAY, 2006), "is a measure

accomplished in strict collaboration with the family or the closest persons to the child, to be as accurate as possible and to meet properly the needs of the child [...] The diagnosis is not an isolated act, though the initial phase of detection has a big importance due to its immediate and further consequences. It is conceived as a series of interventions of a stretched temporal aspect [...] The practitioner who suggests a diagnosis accepts the idea that the development of the child may transform the initial data into other directions which themselves require other forms of action"

5.2. Differential diagnosis

According to the "vulgaris medical", it is "the elimination of one or many affections close to the ones that the practitioner in medicine tries to identify". In other words, the differential diagnosis "is the identification of a pathology thanks to the comparison between them of symptoms emanating from many neighboring affections that are attempted to be differentiated from another by using a process of logical elimination. Establishing a diagnosis of certainty appeals not only the symptoms that the patient represents, but more and more to the Para clinical tests" (medical, s.d.).

The differential diagnosis in Clinical Psychology would aim to eliminate all sorts of other disorders having clinical manifestations similar to autism spectrum disorders. The DSM-5 mentions 8 among these disorders in the section "differential diagnosis" of autism. (Americans, 2015)

5.3. Rett Syndrome

In the Rett syndrome, a perturbation of social interaction may be observed during the regressive phase of the syndrome (typically between 1 and 4 years old). Thus, a proportion of girls with the syndrome can adhere to the diagnostic criteria of autism. Nevertheless, after this period, the majority enhance the capacity of communication and the autistic characteristics are no longer an issue of major preoccupation. The diagnosis

of autism should be considered only when all the diagnostic criteria are met.

5.4. Selective Mutism

In selective mutism, the early development is generally not disturbed. The person usually demonstrates appropriate communicational competences in their respective contexts and situations. Even in the situation where the person is mute, the social reciprocity is not altered and the mode of restrained and repetitive behaviours does not take place.

5.5. Language disorders

In certain forms of language disorders, there could be problems of communication along with secondary social difficulties. Yet, a specific language disorder is generally not associated with an abnormal non-verbal communication, nor with the mode of restrained and repetitive behaviours.

5.6. Social and Pragmatic Communication Disorder

When a person presents a deficit in communication and social interactions but does not manifest behaviours or interests that are restrained and repetitive, the criteria of social and pragmatic communication disorder can be encountered rather than those of ASD. (Autism and Asperger: with the DSM-5, some would rather receive the new diagnosis of "social communication disorder".)

5.7. Intellectual Difference without Autism Spectrum Disorder

Intellectual deficiency (intellectual development disorder) without ASD may be difficult to differentiate from ASD for very young children. People having an intellectual deficiency who have not developed linguistic or symbolic competences represent as well a challenge for the differential diagnosis, since the repetitive behaviour is often present in these people as well. A diagnosis of ASD for a person with an intellectual deficiency is appropriate when the social communication and interaction are weak/poor

compared to the level of development of nonverbal competences (for example, fine motricity, the resolution of nonverbal problems). Intellectual deficiency is the appropriate diagnosis when no contradiction is apparent between the level of social competences and communication and the other intellectual competences.

5.8. Stereotypical movement disorder

Since the motor stereotypies are part of the diagnostic criteria of ASD, a supplementary diagnosis of the stereotypical movements disorder is not provided when those repetitive behaviours are better explained by autism. However, when the stereotypies cause a self-mutilation and become at the centre of a treatment, the two diagnoses can be appropriate.

5.9. Attention deficit disorder with or without hyperactivity (TDAH)

Attention anomalies (being very focused or easily distracted) and hyperactivity are frequent for people suffering from autism. A diagnosis of attention deficit with or without hyperactivity ought to be conducted when attention difficulties or a hyperactivity exceed levels generally observed in people of a comparable mental age.

5.10. Schizophrenia

When schizophrenia happens in the early childhood, it develops generally after a normal or almost normal period of development. A prodromic state (period of preliminary symptoms), in which social deficits as well as interests and atypical beliefs occur, may be confused with social deficits observed in autism. On the other hand, hallucinations and insanity that characterize schizophrenia are not misinterpreted as autism.

5.11. Diagnostic Procedure of autism spectrum disorder

It is estimated that in Algeria no diagnostic procedure is planned by the higher authorities of Health in the country, be it the Ministry of Health or the Ministry of Social solidarity. no protocol of diagnosis is established,

which makes the statistics impossible to achieve in terms of number of people suffering from autism and autism spectrum disorders in the country. This is because so as to collect statistics on the number of children and people having the disorder, there must be first and foremost a true diagnosis of autism. Then, in order to come up with a valid diagnosis, there should be multidisciplinary teams trained in the detection of autism spectrum disorders in every wilaya, to count the least. In fact, the reality shows otherwise, as diagnoses are pronounced just by a mere observation without any psychological evaluation by psychiatrists or speech therapists, or even psychologists with no specific training in the autism issue and with no tool conceived for the Algerian population. What is even worse is that parents are crossing long distances seeking a diagnosis for their child, in a quest of such answers as 'no, he just has a development slower than the norm' or those common answers with immense anthropological weight in our North African population 'he is like x and y and he will develop on his/her own, leave your child alone'.

However, in other countries, the diagnostic procedure is organized and codified by the steps that the parents of children with ASD have to follow. A consultation takes place at the pedopsychiatrist who orients directly towards a psychologist trained in detection and diagnosis, in addition to another orientation towards a speech therapist when there are speech or language disorders, followed by an orientation towards a psychometrician in case of atypical sensory motor development. Furthermore, neurophysiological evaluations are conducted generally as the need of a magnetic resonance imagery is paramount. Therefore, a whole team of specialists come together and examine the results of the child. This teamwork is crucial to affirm or refute a suspicion of autism or of ASD.

Doctor Boumaiza explains that two essential rules are imposed on the pedopsychiatrist "the first rule entails leaving the traditional relation of 'doctor-patient' and to position oneself as a knot in the midst of a chain of observers, evaluators, each intervening from their own position while

staying referent of the environment which surrounds the case, including the parents. The second rule involves considering that the case exhibiting the disorder whose evolutivity is missing has to be tracked and re-evaluated regularly despite the 'immutable' aspect of the disorders." (Boumaiza, 2014, p.2)

Throughout our numerous consultations in detecting ASD, we noticed that the diagnosis of the latter cannot be clearly announced only if the diagnostic procedure explained earlier is respected along with the specificities of the psychological consultation. the psychologist has to work laboriously in order to clinically observe the child in different social situations, first with his parents the second with his peers and lastly on his own. These situations of observation would install a time of cooperation with the other professionals and the parents (as partners in this diagnostic procedure) of this child.

Finally, this long and costly observation for the parents of the child reveal to be the only means towards a definite diagnosis for the child but also the first therapeutic procedure since it allows a detailed and precise clinical observation for the child, which would allow the elaboration of an individual educational project and another project aiming at a quality life for this child and his family.

6. Methodology:

6.1. Procedures and Material

The present study is based on two methods. The first one is descriptive and involves collecting theoretical data related to the object of study. In fact, we consulted previously conducted pieces of research, and we analyzed and checked them in order to delimit and determine the problematic of the current research. Eventually, we formulated the research hypotheses. The second method that we adopted is The experimental method "involves the manipulation of variables to establish cause and effect relationships" (mcleod, 2021)

All assessments of the development of children in the study were performed using the Socio-emotional Cognitive Evaluation Battery (SCEB), an instrument specifically created for the examination of preschool and school-aged children with autism and intellectual disability and recommended by the French High Health Authority. This battery (Adrien, 2007) can be used to examine children who have a developmental level between 4 and 24 months and to assess both the cognitive area, including seven domains such as self-image, symbolic play, object-relation schemata, operational causality, means–ends relations, spatial relations and object permanence, and the socio-emotional area, including nine domains such as behavior regulation, social interaction, joint attention, expressive language, receptive language, vocal imitation, gesture imitation, affective relations, and emotional expression. Based on the Piaget and Fisher models of child development, this assessment tool determines the developmental level in each of 16 domains, according to a hierarchical list of items for each developmental level: level 1 (4–8 months), level 2 (8–12 months), level 3 (12–18 months), and level 4 (18–24 months).

Each item was rated, either as grade 2 (= complete success), grade 1 (= emergence or relative success with a bit of help and a demonstration), or grade 0 (= failure in spite of some help and a demonstration). The developmental level reached by the child in a domain corresponds to a level in which at least one of the items among the higher level was graded 1. A developmental level score from 1 to 4 was determined for each of the 16 domains, and this provides a developmental profile for each child. (Bernard Paulais, et al., 2019)

6.2. Participants:

Our research revolves around 3 cases whose data provided are recapitulated as follows:

Case A was born on the 15th of January 2019. The parents started to

feel worried about the development of their child when they noticed that in his second birthday he could still not walk and did not pronounce any word. That was the first motive of consultation at a psychiatrist in Oran. There was an orientation for a participation in our research including therapy and regular evaluations.

Case B was born on the 20th of February 2019. His mother came to see us with the primary and unique motive of consulting his language delay. At the age of 24 months, the child could not pronounce any word except for 'Mama'. His mother accepted to take part in the research and to apply the therapeutic instructions in her house. It should be noted is that child was born with a lingual frenulum which was operated at the age of 20 months. Because it was late, it induced a hyper alimentary selection for him.

Case C was born on the 28th of December 2018. His psychomotor and linguistic development was slightly retarded. His parents revealed that their child went through four days in a coma as a result of hyperthermia with dehydration at the age of 8 months. His parents wished him to be taken in charge in order to stimulate his development and catch up with his slight retardation.

It should be noted that the parents of these three children mentioned that their child was put in front of screens and in a continuous manner. The mothers of A and C mentioned that the daily routine of their child revolved around going to the bathroom, having meals and watching channels for children on television while case B faced a tablet in his Maxi-Cosi at a very early age (3 months)

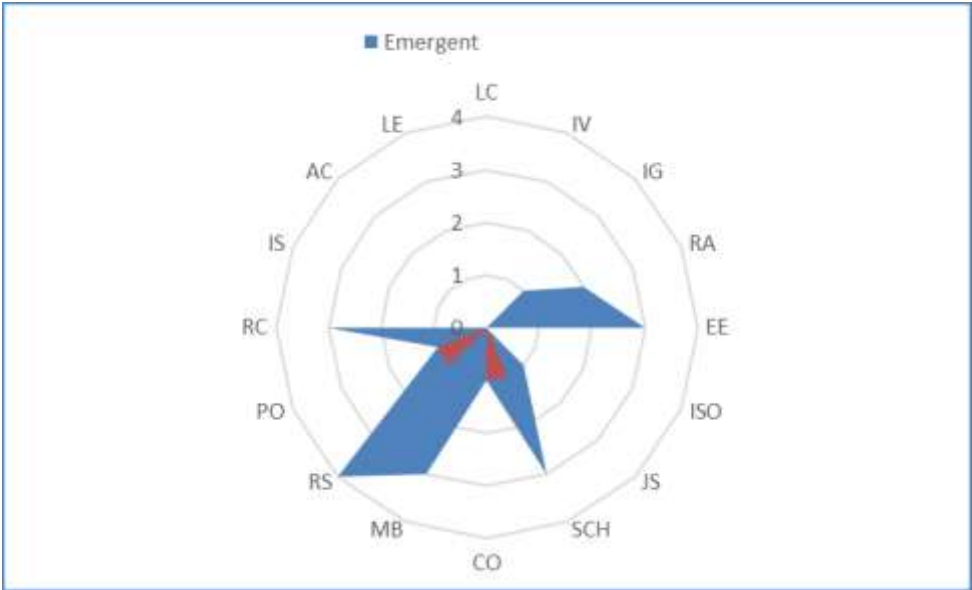
In terms of diagnosis, cases A and C were diagnosed with slight autism by a pedopsychiatrist and this diagnosis was confirmed by a psychologist and a speech therapist. While for case B, an evaluation with the help of M-CHAT was conducted and the results suspected the presence of autism. Important to keep in mind is that for the three cases the diagnosis

was temporarily pronounced as they were not yet 3 years old at the moment of evaluations.

6.3. Results presentation:

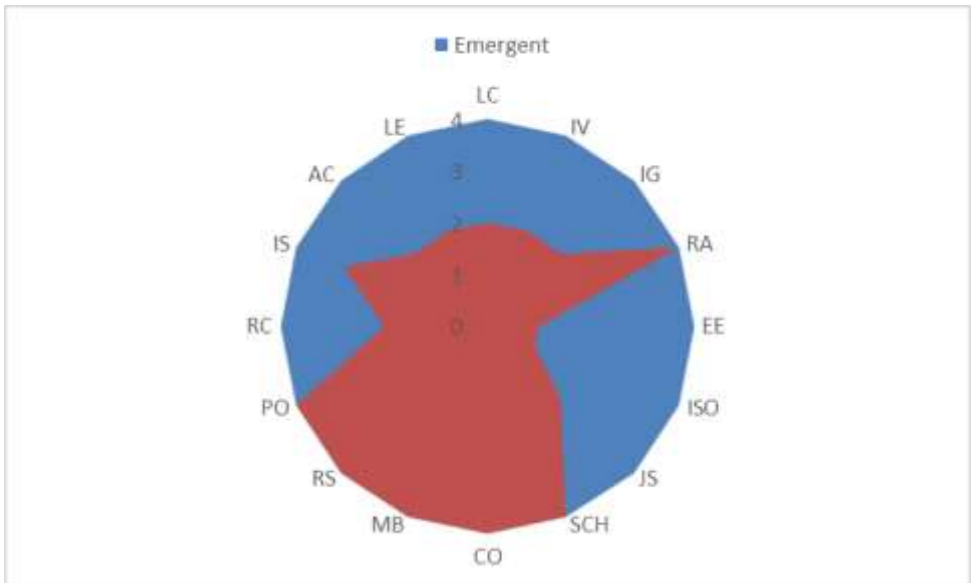
During the first session we observed a clear difficulty in communication and social interactions, in addition to repetitive behaviors and restrained interests: particularly case B who was interested in a restrained manner in the wheels of cars. Besides, these children did not demonstrate any verbal or non-verbal imitation during the first sessions of observation. We noticed a total absence of speech and oral expression and no response to simple instructions for A and B, and a beginning of oral comprehension for C. Neither eye contact nor simple instructions were observed for any of the three cases.

Fig.1. Representing the average of marks obtained by the three cases in the first evaluation (January 2021)



Source: BELAL (2021).

Fig.2. Representing the average of marks obtained by the three cases in the second evaluation (August, 2021)



Source: BELAL (2021).

7. Analyze and discussion:

The Radars of capacities are clearly different between the first evaluation and the second one in favor for the second one. The capacities of children have clearly developed in all domains. the 16 capacities are either in emergence or consolidated, while during the first evaluation the majority of capacities was at 0, meaning that they had not even emerged.

In the first evaluation the vast majority of capacities had not emerged, it was the case for: comprehensive and receptive language, verbal imitation, joint attention, self-image and social interactions. the remaining capacities were in Phase 1 in delicate emergence.

The following capacities: permanence of object, spatial relation, means and objectives, operational causality, schemas of relation with objects and

affective relation were totally consolidated and reached a developmental age of 24 months.

The next capacities: expressive and comprehensive language, verbal and gestural imitation, emotional expression, symbolic game, regulation of behavior were consolidated in level 2 and in emergence up to level 4 which infers that by continuing the intensive work these capacities and by conducting the task of generalization, these capacities would very probably develop and be consolidated.

Social interaction is evaluated at level three in the second evaluation while in the first one no social contact emerged for the three children. this clear and rapid evolution impelled us to dig deep into the area of differential diagnosis, and to repeat the diagnosis for the three cases. It is very probable to estimate that virtual autism exists despite the controversy that emanates from this term in the scientific community. Yet, this disorder exists, and unfortunately, a lot of children in the world such as the three cases of our sample were misdiagnosed with autism while they suffer from poor stimulation and an early dependence to screens (active or non-active) which hindered them from an appropriate learning of the basics of social communication and of exchange with their peers.

8. Conclusion:

« The positive diagnosis relying on no pathognomical symptom, only the evolution would confirm the diagnosis.” (BOUMAIZA, 2014). Indeed, the results of our research confirm the quotation of doctor Boumaiza. As long as the etiology of ASD remains vague, the diagnosis will remain dependent on the evolution of the multidisciplinary work of evaluation, but especially and first and foremost on the time dedicated to accomplish this procedure. Notwithstanding, the time of evaluation is not a waste in the evolution of the issue in question but rather the bedrock from which would

emerge an appropriate evolution of the work.

" The phenomenology of the ASD relies on a scaffolding of psychodynamic, neurobiological, and evolutionary sensory intricacies due to the continuous development of the child are intimately tied to the notion of neuroplasticity related to this age group. Saying that concerning ASDs, a continuous symptomatic sweeping must not only be conducted but also renewed." (Boumaiza, 2014)

The research at hand has reported that six months of observation and an objective evaluation with regular intervals is compulsory to track the development of the child who is said to be in constant evolution. What is worse is that we are currently living a wave of virtual autism due to the massive exposition in the early months of life, if not the first days of an infant's life. A weakening of social stimulations, of language and of the exploration of the environment which usually misleads the diagnosis of ASD by its extreme resemblance to the latter.

Our research underlines the importance to conduct more and more research on the phenomenon of addiction to screens by very young children in order to clarify the symptomatology but also to analyze the developmental correlations with autism spectrum disorders.

Last but not least, our research highlights the importance of a campaign for the general awareness-raising on the danger of screens, particularly for children. A systematic supervision throughout the three first years, within the framework of health tests as well as other developmental aspects. At the schooling age (preschool and primary), forms of autism with tardy expression are to be taken into account. It is recommended to be attentive with children having important difficulties in social interactions and particularities in learning, let alone a significant mental retardation.

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