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# Autism Spectrum Disorder Diagnostic Scale – Revised

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***ABSTRACT***
*The main aim of this study is to empirically prove the Diagnostic Accuracy Scale to diagnosis of people with autism spectrum disorders (ASD), the sample of participants has been extended, paying special attention to students over 14 years of age, adapting the activities and, therefore, the indices-criteria of the observation factors. A total of 94 students have participated in the study, whose coded data allow us to corroborate the data found in the initial scale, facilitating a precise and exhaustive diagnosis of the disorder by levels.*
*The diagnostic conclusions were based on the gaussian curve found from the typical scores obtained from the direct scores obtained in the ten dimensions of the analysis, made up of three dimensional categories, whose percentage weighting is as follows: 1) the procedural category (60%), 2) the social dimensional category (20%), and 3) the behavioural dimensional category (20%), the overall sum of which allows the diagnostic conclusions of the disorder to be drawn, both at a general level and according to the specific level of ASD. The percentage levels are justified by the empirical studies of the study. Thus, the stepwise linear regression analysis carried out includes two dimensions corresponding to the procedural category as basic predictors of the disorder: I) semantic retrieval (Beta: .90, $R^2$: .82), and II) relationship between retrieval (Beta: .57) and interconcepts or relationships ($R^2$: .82). 57) and interconcepts or relationships between information (Beta: .35), being the overall constant (Beta: .92, $R^2$: .84), ahead of the social or behavioural dimensions, which supports the importance of the procedural dimension, especially related to the development of nodes or relationships between information content in determining the specific criteria for the diagnosis of ASD.*

***KEY WORDS***
*Autism Spectrum Disorder, Diagnosis, Cognitive Networks, Global Theory.*

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## I. INTRODUCTION

Currently, people with Autism Spectrum Disorder (ASD) are defined on the conceptual basis of a highly heterogeneous multilateral specific neurodevelopmental disorder, as opposed to the diagnostic consideration of pervasive developmental disorder, which is still in force in relation to the general characteristics of current international classifications, both the American Psychiatric Association [APA] (2013), as well as the World Health Organization [WHO] (1992, 2020), which define it in terms of the presence of two basic dimensions, related to specific needs in communication and social interaction and in the dimension related to restrictive and stereotyped behaviours according to three levels of intensity, with 1 being the lowest level of need and 3 the highest level of need.Scientific progress, however, allows Motrron, Dawson &Soulières (2006) to state that they have found that people with ASD can achieve a higher initial overall semantic perceptual quality than initially thought, provided that appropriately mediated cues or relational nodes are provided with respect to the new perceived stimuli, especially when relationships with other previously learned content are facilitated.In this sense, there is a significant advance in the conception of ASD. In this sense, there is a significant advance in the conception of ASD. Thus, as Eycke& Müller (2018) report, it is very likely that people with ASD show only neuro-correlations throughout perceptual-cognitive processing, due to limitations in the functions of neural connectivity, which depends on connectional limitations in the GABAergic neural pathway, which facilitates the smooth transmission of information at the brain level.

According to these hypotheses, perceptual-cognitive differences between different specific needs can be explained. Thus, a person may focus on an attentional-perceptual aspect due to the interest or motivational intensity that this stimulus exerts on a personal level, but, by the same token, ignores other procedural areas, however, the creation of neural networks or nodes between the information function correctly, which could coexist with the probability of an attention deficit disorder, which may oscillate with high levels of frequency throughout the encoding process and, in turn, may or may not be accompanied by hyperactivity; others may present an occasional distortion of reality, which may lead to the elaboration of erroneous neural relationships, which may increase as the confusions between the created networks themselves and the parallel contextual reality itself increase, which could configure a schizotypal diagnostic group, but in both cases, the process of

creation of codes and nodal relations works more or less correctly. However, in people with ASD what happens is that neural transmission is severely impaired in order to make the relational connection between concepts or deficits in the fluidity of information processing.

Since these studies, empirical findings have followed in this line of research. Pitskel, Bolling, Kaiser, Pelphrey & Crowley (2014) confirm the existence of limited processes in the generalised disconnectivity of the GABA pathway in people with ASD, which is especially altered, systemically and globally, in the areas corresponding to the frontoparietal networks, the activations of the amygdala, the insula, the nucleus accumbenssepti and the prefrontal cortex, which conclusively affects the perceptual-attentional component, the affective-emotional area and the cognitive and behavioural regulation or capacity for adaptive flexibility to contexts, intertwining all these processes together, both clinically and pathophysiologically, without being able to find specific isolated impairments or limitations, but rather affecting the whole process of information transaction..Their hypotheses have been corroborated by Oldehinkel et al. (2019) and, also, Shehzad et al. (2014), who confirm the specific association between sensorimotor regions and sensory-cognitive processes, demonstrating the importance of impaired multisensory and visuomotor integration in people with ASD and conclude that inter-nodal connections are severely affected in people with ASD, which also implies the most specific feature of the diagnostic symptom cluster of this disorder.

These synaptic limitations affect cognitive structural rigidity, which, according to Mazefsky, Pelphrey & Dahl (2012), may be the cause of perseverance in the face of stimuli perceived as aversive from the context, which generate personal situations of severe distress and/or comorbid anxiety, whereby, in a circular fashion, negative feedback is produced on the basis of one's own experiences of the context, i.e., the reaction to the context is not adequate, then the context is perceived negatively, which generates highly negative neuronal reactions, which, finally, can produce a neuronal remodelling, which increases the specific limitations in the GABA system itself of interneuronal information transmission. These same hypotheses also explain the presence of motor rigidity, visuomotor deficits and the persistent hypersensory and stereotyped structure along this diagnosis.

But, besides, when the perceived stimulus is cerebrally hindered by the absence or limitations in the transition and flow of information, the permanent memory stores isolated and unconnected semantic maps, which causes the permanent memory to become highly saturated with unconnected conceptual units, which can generate significant cognitive stress and emotional tension, which may explain many of the related comorbidities associated with states of anxiety and/or severe distress. In this sense, Heatherton (2011) affirms that these connective limitations produce emotional collapses of one's interoceptive state and prevent the modulation of appropriate responses to external or exteroceptive contextual demands, which could imply the presence of severe deficits in the processes of emotional-behavioural self-regulation or dysregulation.These findings have also been corroborated by Mazefsky et al. (2013), Weiss, Thomson & Chan (2014), who affirm this unconnected base prevents him from relating information and, consequently, makes it difficult for him to carry out flexible behaviour adaptive to this context; which, according to Biederman et al. (2012), is owing the feedback obtained on the same context of the erroneous actions issued, which, in the medium term, can concur with a symptomatology typical of anxiogenic-depressive processes or other comorbidities related to personality alterations.

Justly, Gotham et al. (2015) and Siegle et al. (2015) indicate that one of the most common causes of this perseveration-related symptomatology lies in the specific activity of the amygdala, a subcortical structure located in the medial temporal lobe, which is the activity responsible for the dysregulation and, above all, the generalised disconnectivity of information processing, which is a highly specific feature of people with ASD.This important basic hypothesis has subsequently been corroborated by numerous scientific studies related to conceptual theories of processing in people with ASD (Keenan,Gotham & Lerner2018; Mazefsky, Collier, Golt & Siegle, 2020).Thus, the nodal-neural relational deficits found in people with ASD have been associated with a decrease in the functional area of the corpus callosum area (Hardan, Minshew y Keshavan, 2000), with a recurrent co-morbidity of white matter hyperplasia in the parietal cerebral cortexes (Kates, Folley, Lanham, Capone & Kaufmann, 2002; Barnea-Goraly et al., 2003), as well as, in some subjects, fracture or atrophy of the cerebellar fibres or peduncles and of the middle hemispheres was observed (Brunberg et al., 2002; Jacquemont et al., 2003; Hessl, Rivera & Reiss, 2004).

**THE DIAGNOSTIC SCALE – REVISED**

In accordance with these scientific advances, Ojea (2023) elaborates a new conceptual-theoretical propositional theory, in relation to the type of perceptual-cognitive processing of information, which concludes with a cyclical perceptual-cognitive hypothesis, which is called global cyclical theory (GCT), which is based on the basis of a structure, through which information processing continuously revolves around the development of neural relationships between the functioning of all basic psychological processes, in order to elaborate a scale for the diagnosis of ASD, relating the basic premises of this GCT (Ojea, 2024ab).

This new scale is also structured around five basic factors, which are used for the systematic and direct observation of the person being assessed, in order to obtain an exhaustive knowledge of the perceptual-cognitive processing way and the evolutionary-behavioural process of the individual being diagnosed:

1. Perception of information.
2. Coding of information.
3. Elaboration of relations- nodes.
4. Recall and retrieval.
5. Creativity, fiction and imagination.

These five factors integrate perceptual-cognitive concepts, semantic memory quality, symbolic attribution skills, fiction and imagination, sensory-motor behaviours and reactive-emotional behaviours. Each factor includes between three or four activities, making a total of seventeen activities. For each activity corresponding to each factor, the application booklet indicates the specific objective of the task, the materials necessary for its development and the procedure for carrying out the activities that comprise them.Likewise, the observation factors include complementary materials and observations for students over 14 years of age, provided that it is observed that the general activities proposed decrease extrinsic motivation towards the task, the contents of which are found in the corresponding Annexes, duly indicated, but in None of these complementary activities should replace other activities, but rather they should be used in a complementary way. The participants who have performed these complementary activities, the evaluator will respond to the related criteria-items, which are also indicated in the observation booklet.

I) Data observed and appropriately annotated throughout the observation process in the five factors are subsequently coded in relation to the analysis of ten specific dimensions, whose data will facilitate the statistical scoring and, consequently, the diagnostic conclusion, in terms of empirical probability of the ASD level of the examinee for a reliability level of 95%.

Subsequently, the coding of the different variables of the EPPC-TEA-R is integrated within the quantitative continuous values for each dimension, which defines it as an instrument integrated by dimensions related to perceptual-cognitive processing, social process and sensory-motor behaviours, through a continuous scale (0-4), being 0 (no specific need) and 4 (there is a lot of specific need).

The ten dimensions-goal to coding analysis are as follows:

I) Comprehension of conceptual units.
II) Reconstructionofsignificants.
III) Hierarchisationofcategories.
IV) Development of conceptual node-relationships.
V) Development of categorical node-relationships.
VI) Informationrecovery.
VII) Social interaction.
VIII) Social communication.
IX) Stereotypedbehaviours.
**X)** Restrictive behaviours.

Once the data for the ten dimensions have been categorised, the direct scores are summed and the total statistical sum is found. Data or direct scores (DS) found are transformed into their corresponding typical scores (Z) and their corresponding percentile (*P*), in order to determine the location of the assessed person in relation to the probability of the diagnosis of ASD and its corresponding level.

Therefore, the main aim of this study is the revision and corroboration of the Systemic Scale of Diagnostic Accuracy of ASD, in accordance with the new propositional principles of the disorder in relation to the neuropsychological perceptual-cognitive processing of information, indicated by the indicated global cyclical theory, without ignoring the specific evolutionary-behavioural process. This revision has been due, firstly, to the corroboration derived from a larger sample size, and, secondly, to the adaptation of the specific activities to students over 14 years.

This new scale is called the Perceptual-Cognitive Scale for Autism Spectrum Diagnosis- Revised, which has been published in e-book way by Ojea (2024c)includes activities adapted to people over 14 yo, as well as includes themodifications of the observation criteria-items throughout the factorial observation process.

## II. METHOD

**Research design**

The research design is based on a statistical experimental analysis for N: 94, in order to justify the statistical goodness of fit of the scale. The diagnostic conclusions are made on the direct scores sum, which are converted into their corresponding typical scores, whose diagnostic equivalences are directed by the gaussian normal curve of the typical scores found.

**Participants**

The empirical justification of the EPPC-ASD-R has been made 94 participants with a previous diagnosis of ASD or with a highly probability of ASD diagnosis, regarding to three levels of this disorder (1-2-3) (APA, *ob. cit*.), as well as, from different age ranges (see Table 1).

**Table 1: Participants (N: 94).**

| ***Group*** | ***Age ranges*** | | | | | | ***Total*** |
|---|---|---|---|---|---|---|---|
| | | ***3-7*** | ***7.1-11*** | ***11.1-14*** | ***14.1-18*** | ***>18.1*** | |
| | ASD-1 | 5 | 19 | 11 | 10 | 5 | 50 |
| | ASD-2 | 7 | 8 | 6 | 6 | 3 | 30 |
| | ASD-3 | 4 | 2 | 5 | 3 | 0 | 14 |
| ***Total*** | | 16 | 29 | 22 | 19 | 8 | 94 |

As can be seen, 50 students with ASD- 1 level participated in the study, of which 5 belonged to the age group 3-7 years, 19 to 7.1-11, 11 to 11.1-14, 10 to 14.1-18 and 5 over 18. 1 years of age; 30 students with ASD-2 level, of which 7 belong to the age group of 3-7 years, 8 of 71-11, 6 of 11.1-14, 6 of 14.1-18 and 5 over 18 years and a total of 14 students with ASD- 3, of which 4 belong to the age group of 3-7 years, 2 of 7.1-11, 5 of 11.1-14, 3 of 14-1-18 and 0 >18.1 years.

**Study variables**

The Scale is made up of twelve quantitative variables, two fixed variables, concerning to the specific characteristics of the participants, regarding the ASD level (group) and the variable respective to different age intervals (age). The remaining ten variables correspond to ten dynamic dimensions- goal of this study:

I) **Comprehension**: Comprehension of conceptual units and attribution of fictional and imaginative abilities.
II) **Meanings**: Reconstruction of significants and cognitive attribution of fictional and imaginative abilities.
III) **Hierarchisation**: Hierarchisation of concepts and conceptual categories.
IV) **Interconcepts**: Development of relationships- nodes between concepts.
V) **Nodes**: Development of node-relationships between conceptual categories and intercategories.
VI) **Retrieval**: Recovery of information, regarding to semantic memory.
VII) **Interaction**: Reciprocal social interaction.
VIII) **Communication**: Social communication and Language.
IX) **Stereotypies**: Stereotyped behaviours.
X) **Restriction***:* Restrictive and sensory behaviours.

**Procedure**

Once the activities were adapted to students 14 years of age and older,as well as the item-criteria of the five factors of the observations were modified, the ten Scale dimensions- goal were coded on corresponding direct scores. Then, the direct scores have been transformed into typical scores and the corresponding percentile which normalized gaussian curve has allowed deduce the specific location of disorder diagnosis

## III. RESULTS

**Scale reliability**

The statistical power of the study sample has been analyzed through the Cronbach's Alpha reliability level (α) for the whole Scale variables (see Table 2).

**Table 2: *Cronbach´salpha*.**

| ***α*** | ***Cronbach´sAlpha standarized*** | ***Items*** |
|---|---|---|
| .96 | .95 | 12 |

As can be seen, the overall mean reliability indicates α: .96 for this study as a whole, indicating that Scale is indeed significantly consistent with a valid and reliable intrinsic analysis, which supports the empirical results.
The overall statistics for reliability studies, with regard to data mean (μ), the explicative variance of the DV (group) ($\sigma^2$), the correlations between variables (*r*) andα levelfor each variable are shown in Table 3.

**Table3: Reliabilitystatistics.**

| *Variables* | *μ* | $\sigma^2$ | *r* | *α* |
|---|---|---|---|---|
| Group | 35.51 | 275.07 | .90 | .95 |
| Age | 34.40 | 305.27 | -.21 | .97 |
| Comprehension | 33.00 | 237.46 | .89 | .95 |
| Meanings | 32.91 | 243.47 | .88 | .95 |
| Hierarchisation | 32.87 | 242.95 | .88 | .95 |
| Interconcepts | 32.70 | 245.07 | .93 | .94 |
| Nodes | 32.42 | 236.18 | .93 | .94 |
| Retrieval | 32.40 | 236.37 | .96 | .94 |
| Interaction | 32.70 | 242.66 | .95 | .94 |
| Communication | 32.74 | 238.85 | .95 | .94 |
| Stereotypies | 32.80 | 248.65 | .83 | .95 |
| Restriction | 32.91 | 261.84 | .55 | .96 |

Indeed, as can be seen, for each variable considered in isolation, the α levels are higher to .94, indicating a positive statistical power fit of the Scale for the data coding.

**Variance analysis**

Owing the aim of this study, an analysis of the effects of explanatory variance of all study variables, including the variable "age", considered as factors on the variable "group" (ASD level), which has been considered as the DV has been requested (see Table 4).

**Table 4: Tests of Between-Subjects Effects (DV: "Group")**.

| *Source* | *Type III Sum of Squares* | *df* | *Mean Square* | *F* | *Sig.* | *Noncent. Parameter* | *ObservedPower(a)* |
|---|---|---|---|---|---|---|---|
| CorrectedModel | 44.53(b) | 14 | 3.18 | 44.23 | .00 | 619.22 | 1.00 |
| Intercept | 3.44 | 1 | 3.44 | 47.86 | .00 | 47.86 | 1.00 |
| Comprehension | .02 | 1 | .02 | .29 | .59 | .29 | .08 |
| Meanings | .28 | 1 | .28 | 3.91 | .05 | 3.91 | .49 |
| Hierarchisation | .05 | 1 | .05 | .75 | .38 | .75 | .13 |
| Interconcepts | .24 | 1 | .24 | 3.39 | .06 | 3.39 | .44 |
| Nodes | .49 | 1 | .49 | 6.86 | .01 | 6.86 | .73 |
| Retrieval | .00 | 1 | .00 | .08 | .77 | 08 | .06 |
| Interaction | .00 | 1 | .00 | .00 | .93 | .00 | .05 |
| Communication | .01 | 1 | .01 | .21 | .64 | .21 | .07 |
| Stereotypies | .53 | 1 | .53 | 7.38 | .00 | 7.38 | .76 |
| Restriction | .48 | 1 | .48 | 6.72 | .01 | 6.72 | .72 |
| Age | 1.20 | 4 | .30 | 4.20 | .00 | 16.80 | .90 |
| Error | 5.68 | 79 | .07 | | | | |
| Total | 86.00 | 94 | | | | | |
| Corrected Total | 50.21 | 93 | | | | | |

**a) Computed using alpha = .05**

**b) $R^2$ = .887 (Adjusted $R^2$ = .867)**

As indicated, the intersection of the variable-factor set indicates a significant critical level of explanatory variance regarding to DV (sig: .00); however, differences between the variances exercised by the different variables considered isolated are evident.

In this way, the variable "meanings" (sig: .05), "nodes" (sig: .00), "stereotypies" (sig: .00), "restriction" (sig: .00) and "age" (sig: .00) indicate positive levels of significance, while the other variables don´t find significant critical levels.

However, the systemic corrected model has been found a sum of squares (44.53), implying an explanatory R-squared level of 88.7% (adjusted R-squared: 86.7%), indicating a highly significant variance- explicative level of all factors as a whole over the DV (sig: .00).

**Predictive analysis**

ASD´ group variable has been assessed through a predictive analysis of those variables-factors that are considered with higher level of explicative- variance incidence regarding DV, which has been carried out throughout the stepwise regression analysis (see Table 5).

**Table 5: Variables entered (DV: Group).**

| *Model* | *Variables entered* | *Stepwise* |
|---|---|---|
| **1** | **Retrieval** | Stepwise (Criteria: Prob. F to enter<= .05, prob. F to remove>= .10). |
| **2** | **Interconcepts** | Stepwise (Criteria: Prob. F to enter <= .05, prob. F to remove >= .10). |

As can be seen, the stepwise regression model includes two variables, which correspond to the perceptual-cognitive processing dimensional category: "retrieval" and "interconcepts", which corroborates the importance of the process variables for the predictive determination of ASD´ diagnosis ("group").
The explanatory predictor levels of R and $R^2$ of the variables-factors selected by the regression model can be seen in Table 6.

**Table6: Modelsummary.**

| *Model* | *R* | $R^2$ | $R^2$*adjusted* | *Error* | *Change statistics* | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | $R^2$*change* | *F* | $df_1$ | $df_2$ | *Sig* |
| **1** | .90(a) | .82 | .82 | .31 | .82 | 427.04 | 1 | 92 | .00 |
| **2** | .91(b) | .84 | .84 | .29 | .02 | 11.80 | 1 | 91 | .00 |

**a) Predictors (constant): "Retrieval".**
**b) Predictors (constant): "Retrierval" & "Interconcepts".**

Variables summary entered by the regression model presents a corrected R2 for the variable "retrieval": .82 (sig: .00), while for the sum of "retreival" + "interconcepts" variable: .84 (sig: .00), which shows the importance of both the semantic level and the process of neuropsychological interrelationships between stimuli integrated on processing dimensional category.
Indeed, these data are corroborated by the regression ANOVA summary (see Table 7).

**Table 7: ANOVA(c).**

| *Model* | | *Suma ofsquares* | *df* | *Mean square* | *F* | *Sig.* |
|---|---|---|---|---|---|---|
| **1** | Regression | 41.31 | 1 | 41.31 | 427.04 | .00(a) |
| | Residual | 8.90 | 92 | .09 | | |
| | Total | 50.21 | 93 | | | |
| **2** | Regression | 42.33 | 2 | 21.16 | 244.50 | .00(b) |
| | Residual | 7.87 | 91 | .08 | | |
| | Total | 50.21 | 93 | | | |

**a) Predictor: (Constant):"Retrieval".**
**b)Predictors: (Constant):"Retrieval", "Interconcepts".**
**c) DV: "Group".**

The squares sum of the interaction for the two variables included in regression model explains a total sum of squares: 50. 21, with both positive critical significance levels (sig: .00), whose regression coefficients allow to understand the higly importance of each variable included by the regression equation to explain the diagnosis found over "group" variable (see Table 8).

**Tabla 8: Regressioncoefficients (a).**

| *Model* | | *Unstandardizedcoefficients* | | *Standarizedcoefficients* | *t* | Sig. |
|---|---|---|---|---|---|---|
| | | *B* | *Error típ.* | *Beta* | | |
| **1** | (Constant) | -.66 | .07 | | -9.51 | .00 |
| | Retrieval | .34 | .01 | .90 | 20.66 | .00 |
| **2** | (Constant) | -.73 | .06 | | -10.61 | .00 |
| | Retrieval | .21 | .04 | .57 | 5.53 | .00 |
| | Interconcepts | .15 | .04 | .35 | 3.43 | .00 |

**a)DV: "Group".**

Hence, both constants, regarding to the variable "retrieval" and the intersection of the two variables "retrieval" and "interconcepts" show significant critical levels (sig: .00), as a consequence of hypothesis testing that partial coefficients are zero in the sample people, as rightly indicated by the analysis t-statistic.

**THE SCALE CODING**

From the application of the five factors, which integrate a total of 17 observation activities, distributed in three activities for the first factor (perception), three for the second (cognitive coding), four to the third (nodal relationships), fourth to fourth (information retrieval) and three for the fifth factor (creativity, fiction and imagination), while the observations concerning the social and behavioural dimension are integrated along the five indicated factors. The coding process of ten dimensions- goal will contribute to the conformation of disorder´ final diagnostic conclusion.

Coding has been scored following a continuous assessment (0- 4), being 0 (no deficit) and 4 (severe deficit), in order to obtain the direct coded scores (DS).

The scoring structure and the sum of the DS(Σ) can be found in the publication by Ojea (2024b, *ob. cit*.), which can be summarised in Table 9.

**Table9: $\Sigma_{DS}$.**

| ***DIMENSIONS*** | | ***DS*** |
|---|---|---|
| PROCESSING | **I.** omprehension of conceptual units. | |
| | **I.** econstructionofsignificants. | |
| | **I.** ierarchisationofcategories. | |
| | **V.** evelopment of conceptual node-relationships. | |
| | **V.** evelopment of categorical node-relationships. | |
| | **I.** nformationrecovery. | |
| SOCIAL | **I.** ocial interaction. | |
| | **I.** Social communication. | |
| BEHAVIOUR | **K.** tereotypedbehaviours. | |
| | **K.** estrictive behaviours. | |
| **Σ TOTAL:** | | |

**SPECIFIC DIAGNOSTIC**

In order to proceed to elaborate the corresponding diagnostic conclusion according, the DS are statistically transformed into equivalent typical scores (Z-scores), which correspond to the corresponding percentile (*P*), relative to the frequencies operationalised from *P*: 10 to *P*: 100, in statistical intervals of 10 by 10.

**ASD´ general level**

The DS are transformed into their corresponding Z, which, according to the Gaussian curve, are calculated the corresponding percentile *P*, from which the probability of the diagnostic conclusion is concluded, both at the general level and according to each ASD level corresponding.

Regarding to the global diagnostic conclusion, data found and their transformation on Z and *P*respective to N: 94, can be seen in Table 10.

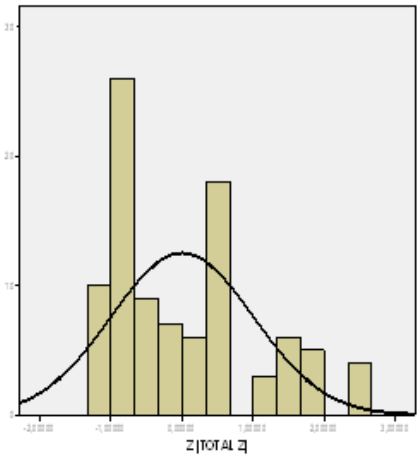
**Table 10: DS´ transformation (N: 94).**

| | **DS** | **Z** | ***P*** |
|---|---|---|---|
| | 14.60 | -1.02 | 10 |
| | 16.20 | -.92 | 20 |
| | 18.20 | -.80 | 30 |
| | 20.40 | -.66 | 40 |
| | 26.40 | -.28 | 50 |
| | 34.40 | .22 | 60 |
| | 36.20 | .33 | 70 |
| | 36.40 | .34 | 80 |
| | 57.60 | 1.68 | 90 |
| | 70.60 | 2.50 | 100 |
| μ | 28.93 | .13 | |

As indicated, the sum total of the DS and their transformations allows conclude that scores indicated from *P*: 60 onwards indicates the probability of the ASD´ diagnostic group, the intermediate zone, corresponding to *P*: 50 (-

.28) indicates the statistical limit for this disorder diagnostic consideration, so it would be necessary to proceed to carry out new longitudinal observations about, while the scores under the *P*: 40 (-.66) are away from any probability of making a diagnostic conclusion concurrent with ASD´ diagnosis.
These conclusions are derived and confirmed by observing the gaussian distribution normal curve, which indicates one Z positive mean score (μ: 2.43E-16) (see Figure 1).

**Figure1: Gauss curve (N: 94).**



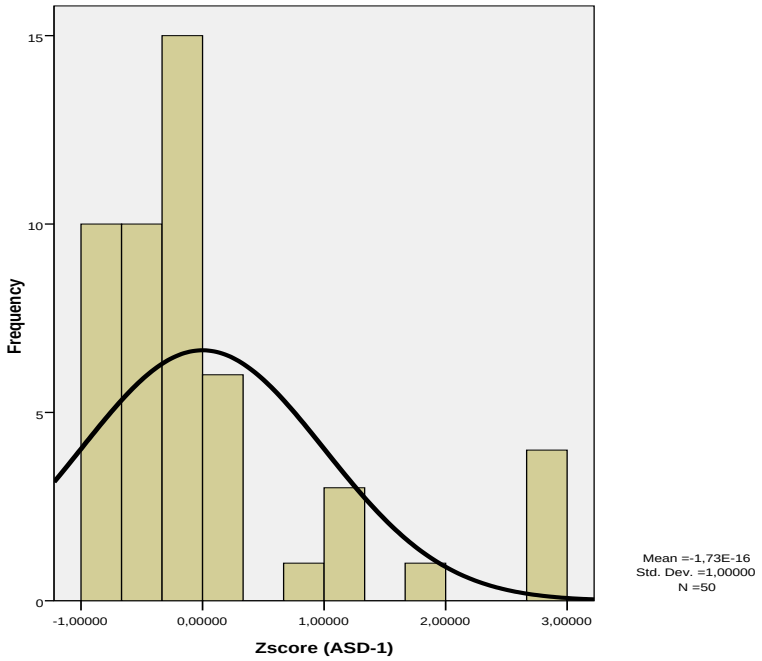

**Diagnostic conclusion according ASD´ level**
Thus, for the ASD1- level, the Z- *P* data and the mean of the total sum (μ) have been found as shown in Table 11.

**Table 11: DS transformationto ASD-1 level (n: 50)**

| | DS | Z | *P* |
|---|---|---|---|
| | 14.06 | -.90 | 10 |
| | 14.92 | -.76 | 20 |
| | 16.20 | -.55 | 30 |
| | 17.00 | -.42 | 40 |
| | 18.20 | -.22 | 50 |
| | 18.20 | -.22 | 60 |
| | 19.46 | -.01 | 70 |
| | 20.40 | .13 | 80 |
| | 30.00 | 1.71 | 90 |
| | 36.40 | 2.76 | 100 |
| μ | 20.48 | .14 | |

The normalized Gaussian distribution curve, the positive Z scores begin at *P*: 70- 80owing to slight difference typical- score (-.01–.13) and with statistical mean: 1.73E-16, which also allows to conclude that scores located below *P*: 50- 60 (-.22) the diagnostic conclusion is significantly away the probability of presenting an ASD diagnosis, as well as, it would necessary to schedule a longitudinal follow-up (see Figure 2).

**Figure 2: ASD1-level Gauss histogram.**



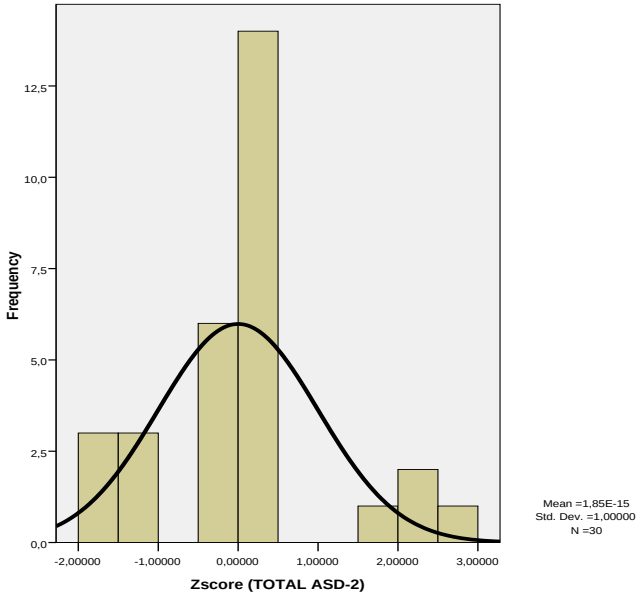

Regarding the scores transformed according to the ASD 2- level, results indicated in Table 12 can be observed.

**Table 12: DS transformation to ASD-2 level(n: 30).**

| | DS | Z | *P* |
|---|---|---|---|
| | 24.78 | -1.52 | 10 |
| | 29.40 | -.88 | 20 |
| | 34.26 | -.22 | 30 |
| | 35.12 | -.10 | 40 |
| | 36.20 | .04 | 50 |
| | 36.20 | .04 | 60 |
| | 36.40 | .07 | 70 |
| | 36.40 | .07 | 80 |
| | 50.40 | 1.99 | 90 |
| | 54.60 | 2.57 | 100 |
| μ | 37.37 | .20 | |

Regarding to ASD 2- level group, data distribution (Z) in normalized Gauss curve is above zero starting at *P*: 50, whose μ: 1.85E-15. Likewise, it is confirmed that scores over*P*: 40 requires an in-depth longitudinal to determine the final conclusion, while scores below the *P*: 30 are close to one diagnostic conclusion of the ASD 1- level (see Figure 3).

**Figure 3: ASD 2-level Gauss histogram.**



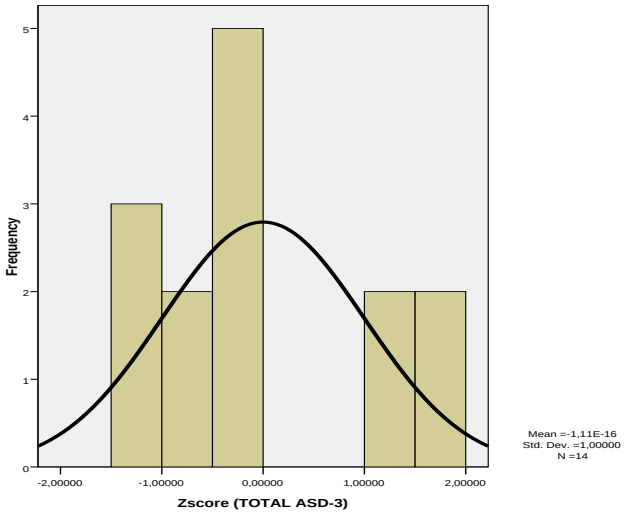

Finally, in relation to the ASD 3- level group, the following transformed scores have been found (see Table 13).

**Table 13: DS transformation to ASD 3- level(n: 14).**

| | PD | Z | *P* |
|---|---|---|---|
| | 54,20 | -1.03 | 10 |
| | 54,40 | -1.00 | 20 |
| | 55,80 | -.78 | 30 |
| | 58,40 | -.36 | 40 |
| | 58,60 | -.33 | 50 |
| | 60,60 | -.00 | 60 |
| | 64,50 | .61 | 70 |
| | 68,40 | 1.24 | 80 |
| | 70,60 | 1.59 | 90 |
| | 70,60 | 1.59 | 100 |
| μ | 61.61 | .15 | |

Inthese statistical data, corresponding to the ASD 3- level, the gaussian normalized distribution curve (Z) settled above zero corresponds to *P*: 70 and P: 60 owing the proximity of typical- scores (-.00–.61), whose μ in the normalized Gauss curve is: 1.11E-16; therefore, likewise, it should be considered that scores below P: 60 present a probability of ASD 2- level diagnosis (see Figure 4)

**Figure 3: ASD 3-level Gauss histogram.**




Therefore, once the statistical score related to each ASD level has been located along the score transformation processes, it is possible to conclude the ASD´diagnostic level average probability (μ≈)(see Table 14).

**Table 14: Σμ diagnosticprobability.**

| *DS (μ≈)* | *Z (μ≈)* | *NIVEL DEL TEA* |
|---|---|---|
| μ≈ 20.48 | μ ≈ .14 | TEA-1 |
| μ ≈ 37.37 | μ ≈ .20 | TEA-2 |
| μ ≈ 61.61 | μ ≈ .15 | TEA-3 |

## IV. CONCLUSIONS

As has been observed, the social and behavioural dimensions that make up the diagnostic criteria delimited by currently official classifications has been owned a relative explanatory variance over this disorder diagnostic consideration. In this sense, a case study developed along 32 years (Ojea, unpublished) has been able to demonstrate that one initial apparent case of criteria that made up the ASD 1- level diagnosis on the first and second phases of development (0-4.5 years), has progressively improved in the socio-behavioural criteria, owing to the normalised scores in the perceptual-cognitive criteria, especially, regarding the elaboration of nodes or nodal relationships between the goal learning contents, so that, already, from the third phase of development (9. 1- 12 years) a widespread has been decreased in the initial items compatible with the diagnosis of ASD during first and second developmental phase can already be seen, so that completely away from the diagnostic criteria that had observed it, therefore that neurocognitive variables become essential variables that influence over formally observable socio-behavioural dimensions.

These same conclusions have been observed in other longitudinal studies carried out by the same author, which also show that, contrary, certain individuals who present a very low level of criterion items concurrent with the diagnosis of ASD, if have significantly low scores on the relational perceptual-cognitive variables, in later development phases, the ASD´ diagnostic criteria are deepened to.

But, moreover, one of the cognitive variables has stood out above all the others, which refers to the development of networks or relational nodes that intrinsically influences all the other cognitive and perceptual variables, which, in turn, have a fundamental impact in the subsequent socio-behavioural criteria

For this reason, it has chosen a slightly greater explanatory variance in the percentile of the base variables of processing dimensions relate to social- behavioural. Therefore, the functional attribution of the variables operationalized for this study is significantly higher to perceptual-cognitive dimension, which includes 60% of diagnostic variance, regarding to social and behavioural dimensions, which accumulate the remaining 40% of variance.

However, the percentage level of each dimension is a matter that is empirically proven to be stable throughout the study for N: 94, but may be subject to reflection and experimental corroboration, owing to the limitations that may be implied by working with a relatively small sample of published Scale. Consequently, the dimensional percentage could vary or remain stable over the course of future related empirical studies.

Also, the social and behavioural dimensions could have been weighted more intensely regarding to the processual dimension, but the intention of this study has been just precisely to specify the data being consistent

with the explanatory theory of global cyclical theory that shapes currently the conceptual propositional hypothesis of autism.

In the area of the diagnosis itself, it has been found that some students who, if they had been measured exclusively with the social and behavioural dimensions, would have concurred with the diagnosis of the ASD 1-2- level, while when weighting the three dimensions equally, they would be left out it, and, contrary, other students who would remain outside the diagnosis of the ASD 1-2 level, with the sum weighting for the three dimensions, were completely within disorder diagnostic group. However, these considerations were not found in the case of the ASD 3- level, which >90% of the analysis were have agreed, both at the individual dimensional level and in the interdimensional study as a whole to.

Finally, it has been observed that the diagnostic conclusion has been established on the basis of the gaussian curve inflection, elaborated from the z-scores of the psychometric study may or may not coincide with the percentile statistical arithmetic mean, in order to assure the exhaustiveness of the ASD´ diagnostic level.

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