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Descriptive Factors of Emotional Disturbance in People with Autism Spectrum Disorders: A Family Perspective

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Abstract

Individuals with Autism Spectrum Disorder (ASD) have emotional disorder high indices. Cognitive- emotional hypotheses differentiate between emotional experience, that people develop through their contexts interpretation and the emotional experience, which´s consequence of one's emotion and conclude that emotional state presence is due to corporal activation and cognitive interpretation the people makes of that same physiological action, so it´s essential analyze factors that influence in emotional disturbance of children with ASD. Therefore, this investigation tries investigates, from families´ perspective, effects of personal, social, educational and health variables intersection on emotional stability changes of their offspring with ASD.

A total of 78 families of students with ASD were participated in this study, corresponding to 78 people with ASD of different diagnostic levels. Research design is based on experimental model, using an ordinal scale survey (0-5), being 0 "never", and 5 "very often". Data analysis was found: 1) Between-Subjects Effects Test, 2) Comparative Post-Hoc analysis to Diagnosis and Age variables, and 3) Comparative T Independent Samples Test for the Sex variable.

Results conclude the selected factors intersection decisively influences about changes in emotional disturbance levels of individuals with ASD, however factors analysis in isolation it´s necessary be important specific differentiations. Finally, study´ psycho- educational repercussions to reduce emotional stress are discussed.

Keywords: Emotional Disturbance, Autism Spectrum Disorder, Cognitive- emotional.

Introduction

Students with ASD present important limitations in two basic dimensions related to communication and social interaction, with differences in intensity according to three specific levels of diagnostic type, which have been defined by international classification of mental disorders DSM-5® (American Psychiatric Association, 2013). From cognitive perspective, emotional disturbance (ED) is related to anticipate physiological activation. In this sense, Schechter´ (1964) self-attribution theory differentiates between emotional experience that people perform through its interpretation of the situations and emotional experience which is consequence of one's emotion, concluding the presence of an emotional state develop due to corporal activation and cognitive interpretation that self makes of same lived physiological action. Mandrel (1975; 1992) concur previous studies, nonetheless, provides significant important at definition of emotional state to performance of consciousness of perceived emotional experience, so that, from perceptive and cognitive disagreement, corporal activation is carried out.

Considering that people with ASD exhibit perceptive neuropsychological limitations, are supported by central cognitive theory (Happen, 1997; Happen and Frith, 2006), whose hypothesis show these individuals tend to have a reality perception which´s focused to particular aspects and perceptive inflexibility. In accordance to Northrop´ (2017) studies, it´s possible deduce that particularity leads to significant difficulties in understanding social events, as far as these deficits become increasingly complex, especially since their perception of the social world is determined by the continuous unpredictability of contexts and social interaction, which ultimately leads to confused interpretation. The empirical justification of these consequences is also determined by the executive system functioning (Wallace et al., 2016), which, for appropriate functioning, requires some flexibility and met cognition processes adaptation, however both elements are limited by cognitive-perceptive deficits of people with ASD, which, simultaneously, are associated with the depressive disorders co morbidity and difficulties in adaptive functioning in social environment.

The cognitive system´ neural interrelation throughout the information processing operation during the interactions carried out -both lived and perceived- therefore leads to immediate consequences, such as the disproportionate increase in anxiety indices (Simmons and Barceló, 2003). This intolerance and resistance to change and the events uncertainty are consubstantial to the diagnosis specific characteristics, related to the high sensory hypersensitivity of this disorder (Uljarevic, Carrington and Leek am, 2016), although it isn´t clear whether these cognitive-biological processes are analogous in individuals of neurotypical development. Research carried out by Hillocks, Pickles, Howling and Simonoff (2016) confirm that there´s a significant correlation between physiological answers and attentional deficits as predictive elements of manifest anxiety in people with ASD.

Clinton (2016) indicates that ED can be defined as a disability related to individuals´ mental health, characterized by intensive internalized persistent behaviors, such as anguish, anxiety and depression, as well as externalized behaviors, related with physical and verbal aggression or the increase of restrictive and stereotyped behaviors, which concur with significant co morbidity in people with ASD, however, nowadays, there´s little profound knowledge about relationships of ED and autism.

Mayes et al. (2017) analyze symptomatic manifestations of ED and mood in 1827 children with autism and attention and hyperactivity disorders, concluding that children´ 45% with ASD showed a significant ED, whose symptoms aren´t related to age of studies´ participants.

Newbigin, Uljarevic, Vivendi and Dissanavake (2016) explore emotional reactions, specifically related to anguish, manifested, expressed or anticipated anguish in 21 children with ASD between 8 and 12 age years. Their studies conclude there weren´t meaningful differences in prevalence of both answer prosaically performed before researcher who pretended lose clock compared to control group formed by 17 typical children. Payment and Brookshire (2018) perform a predictive study relating to reports issued by 362 mothers on ED and aggressive reactions of their children with ASD and affirm the distress reactions are associated with identity ambiguity, low social support, as well as intrinsic attributions indicated of the manifest anguish.

However, emotional deficits aren´t isolated process, but there is interaction at psychological and physiological systemic level. Prosper at al. (2017) analyze prevalence of emotional and behavioural symptoms with gastrointestinal problems and food selectivity in 163 preschoolers with ASD. Study concludes the children´s 40.5% with ASD exhibit, leastwise, one symptom of gastrointestinal difficulty or food selectivity and, when this relationship occurs, there´re sleep problems, self-injurious behaviors and anxiety consequent problems.

Auditory hyper- reactivity is particular sensory- perceptive process children´s own with ASD that interferes with behavioural adaptability. Takahshi, Komatsu, Takayuki and Kazuo (2016) probe modulation of startle acoustic reply in 17 children with ASD compared with 27 with typical development and deduce the startle acoustic answer is meaningful greater in children with ASD their typical pairs, being, moreover, more prolonged. Other exhaustive research could increase neurophysiological deficits understanding that underlie of disorder and other health problems.

Such et al (2016) verify, in fact, the 27 children with high functioning autism had higher scores in all features of Broader Autism Phenotype, less stability ED and pragmatic language deficits that 23 normotypic pairs.

Lever and Guests (2016) examine psychiatric symptoms in 344 young and adults people with ASD concluding that people´ 79% meet criteria, leastways, a psychiatric disorder once in lifetime, being most common ED: anxiety, depression and social phobia. Also, adults had fewer incidences than younger, specifically, in social type phobias, what´s, besides, adults´ common.

Indeed, different studies confirm these assertions. Magmata et al. (2016) show the anxiety scores severity is determined by symptoms intensity make up the diagnosis itself such as stereotyped behaviors and adaptive difficulties functioning in social context. Factor, Candy, Farley and Scarps (2016) conclude that, although restricted behaviours can be useful as strategies for reducing social anxiety, these are significantly related to deficits in social motivation, deriving from specific symptoms that defines diagnosis, and which, moreover, increase ritualised behaviours and difficulties in assuming changes to previously acquired routines. While, Merrick, Grieve and Cogan (2017) find significant relationships between motivational processes, maladaptive behaviors frequency and psychological impacts in people with ASD.

Method

Goals

Before these empirical evidences, this research tries to respond to the following general aims:

1) Analyze, from family perspective, the effects of personal, social, educational and health variables intersection about changes in emotional stability of their offspring.

2) Prove the effects analysis of these variables in isolation.

3) Study possible influence of static variables: diagnosis type, age and sex on explanatory variances found.

Hypothesis

Following alternative hypotheses have been proposed: 1) From family perspective, emotional disturbance of people with ASD is influenced by the sum of personal, social, educational and health variables, and 2) The observed emotional disturbance isn´t related to diagnosis level (ASD 1-2-3) and participants´ age or sex.

Design

The research design is based on an empirical study of quantitative model, supported on the use of a scale survey (0-5), being 0 "never", and 5 "very often", to which the families of students with ASD have answered.

Participants

A total of 78 families of students with ASD were participated in this study, corresponding to 78 people with ASD of different diagnostic levels, age and sex.

Variables

In this study, the analysis of following variables is carried out:

1. Dependent Variable (DV): Emotional Disturbance (ED), which is operationalized and defined as the sum of four observable behavior dimensions: Inattention+ Irritability + Hyperactivity + Obsession- Compulsion /4.

2. Independent Variables (IV):

- Fixed Factors:

o   Diagnosis: Diagnosis level (1-2-3).

o   Age: Participants age (3-18 years).

o   Sex: Participants sex (man- woman).

-   Co-variables:

o   Pharmacological Treatment (Pharm): Adjusted attention to psycho-psychiatric and pharmacological treatment.

o   Agendas with Visual Indicators or Pictograms (Agenda): Use of temporalized agendas with visual indicators of pictographic type.

o   Participation in Social Groups (Social): Participation level with the peer group.

o   Specifics Characteristics (Personal): Participants´ characteristics in survey.

o   Organized and Anticipated Activity (Organization): The activities´ organization, anticipation level of task and continuity of routine actions without unforeseen.

Procedure

Once defined concept of temporary emotional disorder (ED) and the possible influence factors, a hoc survey was made and families were asked from your perspective, When´re outbreaks of emotional disturbance into your children with ASD? Finally, answers were collected and their results analyzed.

Data analysis

Data analysis has been adjusted to a quantitative model, based on the statistical test SPSS v. 23.0.0, through the following data: 1) Between-Subjects Effects Test, 2) Comparative Post-Hoc analysis to the Diagnosis and Age variables, and, finally 3) Comparative T Independent Samples Test for the Sex variable.

Results

Results classified in following sections: 1) the participants´ distribution, 2) factors effects analysis and their interactions about dependent variable (ED), 3) effects differences analysis through the Post-Hoc Turkey HSD Test for the variable Diagnosis and Age, and 4) effects differences analysis by Comparative Test T for the variable Sex.

People distribution

A total of 78 families corresponding same number of students with ASD responded to survey, of which 72 are men and 6 women, whose distribution according children' diagnosis level, age and sex be seen in Table 1.

Table 1: N= 78 (men=72, women= 6).							
	Sex		**Age (years)**		**Total**		
			6-Mar	10-Jul	14-Nov	15-18	
Men	Diagnosis	ASD1	3	12	9	11	35
		ASD2	4	6	8	2	20
		ASD3	2	7	7	1	17
Women	Diagnosis	ASD1	2	1	1		4
		ASD3	1	0	1		2

The factors effects analysis

The factors effects analysis and its interaction on ED variable carried out the Between- Subjects Effects Test (ANOVA).

First, for global reliability level of Cranach's Alpha= .72, data into factors effects has deepen (see Table 2).

Corrected ANOVA model shows the statistical mean of all factors significantly affects to changes observed in ED (Sig= .00), as well as, different factors´ intersection that shape this study, whose critical level´s significant (Sig= .01), being R. Squared= .62 (R. Squared Corrected= .51).

However, factors analysis isolated indicates differentiated results. Thus, psycho-pharmacological treatment (Pharm) adjustment significantly influences the changes found in ED (Sig= .00, F= 22.24). Moreover, social interrelation with peers and demands coming from those interactions (Social) has significant influence on ED (Sig= .03, F= 4.80), same as Organization variable, which shapes organization, anticipation and anticipation level, has significant influence at ED (Sig= .02, F= 5.35).

However, the Agenda variable, using agendas with visual indicators, specifically, pictograms), surprisingly, it doesn´t perform decisive influence in ED (Sig= .85, F= .03), neither the Personal variable, related with participants´ personality characteristics (Sig= .50, F= .45).

Finally, fixed variables and their interactions also don´t significantly influence in ED variable, with following critical levels found: Age Sig. = .40, Sex Sig. = .39, and Diagnosis Sig.= .20).

In summary, although intersection influence of all variables is meaningful on ED, the Pharm, Social and Organization variables are, specifically, most important explanatory factors of ED scores what cause them essential to take into account to reduce ED levels.

Comparative analysis according to Diagnosis way

To prove if there´re differences in effects of diagnosis type about ED, Turkey HSD Post-Hoc Test carried out. The critical levels (Sig.), based on mean differences, indicate that, from family perspective, aren´t differences in ED variable, according the individuals´ ASD diagnosis type (see Table 3).

Table 2: Between- Subjects Effects Test.
Dependent Variable: EMOTIONAL DISORDER (ED)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	778.36(a)	18	43.24	5.52	0
Intercept	52.58	1	52.58	6.72	0.01
Pharm	174.04	1	174.04	22.24	0
Agenda	0.26	1	0.26	0.03	0.85
Social	37.61	1	37.61	4.8	0.03
Personal	3.58	1	3.58	0.45	0.5
Organization	41.9	1	41.9	5.35	0.02
Age	23.28	3	7.76	0.99	0.4
Sex	5.75	1	5.75	0.73	0.39
Diagnosis	25.81	2	12.9	1.65	0.2
Age * Sex	0.84	2	0.42	0.05	0.94
Age * Diagnosis	18.53	4	4.63	0.59	0.67
Sex * Diagnosis	7.04	1	7.04	0.9	0.34
Age * Sex * Diagnosis	0	0	.	.	.
Error	461.6	59	7.82		
Total	5199.68	78			
Corrected Total	1239.96	77			

Table 3: Turkey HSD Comparisons multiples for Diagnosis.
Dependent Variable: ED

(I) Diagnosis	(J) Diagnosis	Mean Difference (I-J)	Std. Error	Sig*.	95% Confidence Interval	
					Upper Bound	Lower Bound
ASD1	ASD2	-76	1.57	0.87	-4.54	3
	ASD3	0.51	0.96	0.85	-1.8	2.83
ASD2	ASD1	0.76	1.57	0.87	0	4.54
	ASD3	1.28	1.59	0.7	-2.53	5.09
ASD3	ASD1	-0.51	0.96	0.85	-2.83	1.8
	ASD2	-1.28	1.59	0.7	-5.09	2.53

Comparative analysis for Age

Results obtained through Post- Hoc de Turkey (HSD) Test, indicates differentiated critical levels (see Table 4). Thus, there´re significant different about ED of age interval: 3- 6 years about age interval: 7-10 years (Sig= .01) (Sig= .04). Others age ranges of this study don´t show significant critical levels.

Comparative analysis for Sex variable

Since variable Sex is dichotomous, then requires a comparative test based on the Independent Samples Test (see Table 5). Although there isn´t ratio between men and women, results indicate there aren´t differences about influences found on ED according to the participants´ sex type. (Sig= 1.18).

Table 4: Turkey –HSD- Comparisons multiples for Diagnosis
Dependent Variable: ED

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig*.	95% Confidence Interval	
					Upper Bound	Lower Bound
3-6 years	10-Jul	-4.43(**)	1.39	0.01	-8.1	-0.75
	14-Nov	-3.74(*)	1.38	0.04	-7.38	-0.1
	15-18	-1.41	1.55	0.8	-5.5	2.67
7-10 years	6-Mar	4.43(**)	1.39	0.01	0.75	8.1
	14-Nov	0.68	1.02	0.9	-2	3.37
	15-18	3.01	1.24	0.08	-0.26	6.29
11-14 years	6-Mar	3.74(**)	1.38	0.04	0.1	7.38
	10-Jul	-0.68	1.02	0.9	-3.37	2
	15-18	2.33	1.23	0.24	-0.9	5.56
15-18 years	6-Mar	1.41	1.55	0.8	-2.67	5.5
	10-Jul	-3.01	1.24	0.08	-6.29	0.26
	14-Nov	-2.33	1.23	0.24	-5.56	0.9

*Based on observed means.
** The mean difference is significant at the .05 level.

Table 5: Independent Samples Test

Levene's Test for Equality of Variances		T-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95%ConfidenceInterval of the Difference	
									Upper	Lower
ED	Equal variances assumed	2.52	0.11	-1.33	76	1.18	-.2.25	1.69	-5.63	1.12
	Equal variances not assumed			-..00	5.43	0.35	-2.25	2.25	-7.89	3.38

Conclusions

Children with ASD show high scores in ED, which´s determined by the factors selected in this study from theoretical principles presented.

Indeed, the intersection influence of all accumulated factors over ED levels found shows significant variances.

However, factors analysis in isolation exhibit differentiations among themselves. Adjusted pharmacological treatment (Pharm), social interaction among equals (Social) and the organization and anticipation of everyday contexts (Organization) are significant predictors of scores found in ED levels, thus, consequent programs must be properly planned to improve emotional sills.

It´s important highlight that, from family perspective, use of agendas, in accordance with theoretical principles of use of visual indicators (pictograms), widely extended in actuality, don´t affect to ED levels detected. Likewise, intrinsic components that make up people´ specific personality with ASD (Personal) don´t significantly influence the ED levels found.

Variance levels on ED don´t depend the diagnosis type or autism degree (Diagnosis), neither, the participants sex. However, students´ age (Age) submits very different scores, so that, age interval between 2- 3 years is significantly different the scores found in 7-10 and 11-14 age range, but there aren´t significant differences in variances between other age ranges.

In summary, Pharm, Social and Organization factors are basic contents necessary to carry out adapted ED reduction response in life context of children with ASD, being effective for different diagnosis types, age and sex, of which, some proposals are indicated in study discussion.

Discussion

These conclusions allow knowing basic criteria to perform programs and establish adjusted plans for reduction of ED indices detected in individuals with ASD.

In this sense, Ojea (2012) develops an emotional development program applied to 11 children with ASD, in which significant improvements are found in children to experimental

group. Program own of 7 steps for its development, according cognitive-emotional hypothesis: 1) the emotional expression facial recognition, 2) learning, by imitation, of emotional facial expression, 3) concrete analysis of emotional facial expression (partial process), 4) global construction of learned emotion (global process), 5) emotion identification based on the belief and perceptual integration, 6) emotional expression identification developed on contextual situation, and 7) different situations´ application and generalization of processes learned.

Parent, Birdwell, Lambright and DuBard (2016) adapts individual intervention that combines cognitive- behavioural and analytical behavioural approaches to improve severe emotion deregulation in verbal youth with concurrent ASD with intellectual disability within school setting. Authors demonstrated that specific skills generalization strategies implementation, which was intervention innovative factor; it got a fundamental aspect of improvement effectiveness in emotional abilities of 2 study participant.

Lindsey and Barry (2018), even, observe presence of high anguish indices in professionals who work with children with ASD, that influence each other, and indicate preventive programs to correct the factors that cause this anxiety, of which family resources or perceived support stand out, showing, thus, an important interaction between families behaviors and internalization and externalization behavior of ED behaviors in individuals with ASD, as well as, agreement between real and perceived knowledge with external and internal actions.

However, important thing is presence of a global policy of attention to these needs. For this reason, Kerens et al. (2018) investigate in Ireland continuing training needs of professionals who develop their work with people with special educational needs as a global action plan. Results highlight need for a national policy regarding the ongoing training of people ASD´ assistants. Furthermore, they emphasize the specific support and the children independence promotion of as reducing factors of emotional disturbance.

Proust (2017) points out use importance of technical and digital means to develop emotional behavior and improve emotional disorders in children with ASD. So, using example of "provocative shellfire" as a form of media production, key questions development can be encouraged to teach specific social and emotional competencies through literacy education in social networks. Haydon et al. (2017) sets new mobile technologies use in classroom, using video modelling techniques to teach behavioural skills to students with ASD. Clinton (2016) exposes therapy effectiveness based on modelled video use to teach functional life and social skills in people with ASD, so that, meta-analysis evaluated the utility of using video modelling to decrease disruptive behaviors. Golan, Ashwim, Grander, McClintock, Day, Legged and Baron-Cohen (2010) use an animated series: "The Transporters" as a programme to improve emotional understanding in people with ASD aged 4-7 years. Conclusions confirm that participants in the experimental group improved significantly in emotional aspects compared to their peers in the control group.

Ó Donnchadha (2018) investigates mindfulness-based interventions to reduce stress and psychological distress in caregivers and professionals who support people with ASD. Their studies show that due to emotional characteristics that interact between children and professionals, educators face multiple challenges daily, Therefore, it´s necessary cope with professionals´ stress caused during the intervention processes, which improves, both, emotional stress of children with ASD.

Study Limitations

This data must be considered with caution because it´s an analysis only from the familiar context perspective.

Acknowledgments

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