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Original Paper

Trichotillomania in an Autistic Spectum Disroder: Single Case Intervention

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Abstract

The following work addresses trichotillomania and dermatillomania, both symptoms of the impulses control, in a 11 years old girl, who courses the sixth grade in a private elementary school and with a diagnose of first degree autism spectrum disorder and Attention Deficit Hyperactivity Disorder (ADHD) as a comorbidity. The objective was to reduce the frequency of tearing her hair and the skin imperfections in the school context throughout an intervention based on cognitive behavioral techniques. Within the used methodology to analyze the case an exhaustive evaluation of the patient has been performed using grade observation records, before and during the intervention period in order to systematize the whole process. The intervention techniques used where Token Economy and self-instruction. The results show a progressive improvement of the symptoms, reflected in the diminish of frequency of the behaviors registered that were conducted. In spite of the limited time for the intervention for these kinds of behaviors and the base line phase, it was possible to get to know the girl well and establish bonds with her, in spite of her condition, which can be noted in a better adaptation on her school context. This work seeks to favor the increase of research on this disorder since there is information related on the etiological factors, but it still is not enough, likewise, the related information on these disorders and its possible comorbidities is useful to continue with the advance on the treatments in this area.

Keywords

autism spectrum disorders, trichotillomania, dermatillomania, cognitive-behavioral intervention, elementary school

1. Introduction

Autism Spectrum Disorders (ASD) are neurological developmental disorders characterized by persistent deficiencies in communication and social interaction in multiple contexts, associated with patterns of behavior, interests or repetitive and restricted activities (American Psychiatric Association, 2014) and with an unobservable executive functioning (Pérez-Pichardo, Ruz-Sahrur, Barrera- Morales, & Moo-Estrella, 2018). It is estimated that one in each 160 children in the world population has this condition (OMS, 2013), however, in Mexico has been found a prevalence on this disease if 87% (Fombonne et al., 2016). Until this moment, there are no biological markers on ASD, so the diagnose is based fundamentally, in its clinical manifestations. The latter edition on The Diagnostic and Statistical Manual of Mental Disorders, DSM-5, (APA, 2014) has organized it in two domains that must be observed when ASD is being diagnosed. On one side, it groups the social and communicative limitations as a set of difficulties and on the other side, the behavioral paths, interests and/or restricted and repeated activities, stablishing levels of depth and severity. Difficulties in communication and social interaction and a pattern of behaviors and singular activities constitute the main symptoms for the diagnose of ASD. However clinical practice reveals the existence of a ASD profile in which there are no core symptoms but the associated symptoms that actually give place to a professional consultations or a concern on the part of the teachers and parents due to the interference on the daily children's life. What's more, its common to find comorbidities of other psychiatric disorders such as Attention Deficit Disorder, Obsessive Compulsive Disorder, and medical affections such as respiratory and ear infections, food allergies, allergic rhinitis, atopic dermatitis, type I diabetes, asthma, gastrointestinal disorders, sleep disorders, migraines, seizures, and muscular dystrophy (Treating Autism, ESPA Research & Autism Treatment Plus, 2014) and those that have to do with impulses control such as tricotillomania and dermmatillomania.

The therm "trichotillomania" (TTM) comes from the greek "trichos" (hair) "tylo" (pull) and manía (impulse), it was originally proposed in 1889 and later incorporated on the catalogue of pychiatric disorders, belonging to the Obsessive-Compulsive Disorders Group (APA, 2014) and it is characterized as we see in the chart 1, for the objective hair loss, due to the repeated incapacity of resisting the impulses to eliminate the hair, the eyebrows, the eyelashes or the body hair (OMS, 1992; Allevato, 2007). It is estimated that amid the 1% and the 4% of population suffers this disorder and commonly starts between the 5 and 13 years, being equally frequent in men and women, however, at the adult age is even ten times more common in women than in men (APA 2014; Torales y Di Martino-Ortiz, 2016). Accordingly to the American Psychiatric Association (2014) the individual with TTM, can offer or not a conscious resistance to this impulse and the realization itself can be premeditated and planned or not.

Table 1. Criteria for Trichotillomania Disorder according to DSM-V

A. Recurrent pulling of one's hair, resulting in noticeable hair loss.
B. Sensation of increasing tension immediately before hair pulling or when trying to resist the practice of this behavior.
C. Well-being, gratification or release when hair pulling occurs.
D. The disturbance is not better explained by the presence of another mental disorder and is not due to a general medical condition (eg, dermatologic disease).
E. The disturbance causes clinically significant distress or impairment of the individual's social, occupational, or other important areas of activity.

The circumstances that trigger stress increase the pulling the hair behavior, even though in relaxing and distracting states the behavior is also observed (Sarmiento, Guillén, & Sánchez, 2016).

The dermatillomania was presented in a minor frequency than the trichotillomania and it was characterized as is shown in the chart 2 by episodes where the skin was scratched, and some wounds were made then the scabs were ripped and the cycle would start again according to the DSM-5 dermatillomania is part of the Obsessive-compulsive disorders and the related disorders.

The Excoriation Disorder (ED), also called psychogenic excoriation, dermatillomania or Skin pinching Syndrome, makes its appearance in medical literature in 1875. It was the British dermatologist Erasmus Wilson, who coined the term "neurotical escoriation" in which it was described as behaviors in neurotic patients that self-infringed repeated an excessive wounds, extremely hard to control.

Table 2. Criteria for Excoriation Disorder (ED) according to DSM-V

A. Damaging the skin recurrently until provoking skin injuries.
B. Repeated attempts to diminish or cease of scratching the skin.
C. Scratching the skin causes discomfort clinically significatively or deterioration in social, work or other important areas of functioning.
D. The skin damage cannot be attributed to physiological effects of a substance (e.g., Cocaine) or other medical condition (e.g., scabies).
E. The fact of scratching one's skin cannot be explained better by the symptoms of another mental disorder (eg. Delusions, tactile hallucinations in a psychotic disorder, attempts to improve a defect or perceived imperfections as in the TDC, stereotype as in the disorder of stereotypical movements or the disorder for stereotypical movements or damaging oneself in a non-suicidal self-lesions.

With respect to the used inverventions, cognitive behavioral therapy has shown to be effective, as well as the training on in Jacobson's progressive muscle relaxation, behaviral awareness, behavioral awareness, the performance of incompatible behaviors, cognitive restructuring, self-instruction, self-

reinforcing, and exposure in imagination, have proven to be useful as shown by various studies (Himle, Flessner, & Woods, 2004; Enos & Plante, 2001; Diefenbach, Reitman, & Williamson, 2000; Elliott & Fuqua, 2000; as cited in Sarmiento, Guillén, & Sánchez, 2016).

According to this model, before starting the treatment it is necessary to carry out a detailed assessment defining the behaviours in observable terms and stablish registry systems. Generally, the treatments are limited in time and have a determined number of sessions. The efficacy is related mainly with the used technics and not so much with the bond with the therapist, but when the cognitive approach is combined this becomes relevant, a bond is understood as a collaboration relation between patient and therapist. First a definition of the problem is stablished and with an agreed work contract, clear objectives are stablished and those will guide the process.

The cognitive behavioral model centers its interest in the nature of the cognition and the usage of behavioral techniques that promote behavior changes. The objective is to acknowledge through the presentation on this case how can it be treated in school and how the symptomatology can be reduced throughout an intervention based in behavioral-cognitive techniques until the point of reducing the frequency of tearing the hair and the skin imperfections and continue to work other key aspects of the core disorders which is ASD.

2. Case Description

2.1 Participant

It is one 11 years old girl who courses sixth grade in an upper middle class private school in one of the states in the southeast of Mexico, she is the younger sister of two. She enjoys play videogames, and her favorite characters are the cats, whom are also her favorite theme for conversation, talk about them and specially hers are very nice. Her main difficulties are related with the socialization and school performance, we will call her CG, she has been diagnosed as a high-functioning autism spectrum disorder whose symptomatology focuses on deficits in social interaction, as well as executive functions. The girl does not have monitoring staff within the school and resists most of the time the support of teachers and school psychologists, as well as to follow the curricular adjustments that have been proposed to improve her performance in school, however, sometimes she agrees through negotiations to participate in classroom activities, as long as, the reinforcer is attractive to her at that time. The girl presents difficulty in the process of sustained attention for long periods of time; however, she manages to have a good performance when taking the exams since she accomplishes to finish even before some classmates she even gets good grades. The group in which she works consists of 10 girls and 8 boys from 10 to 11 years old. The group teacher uses a traditional teaching method, they have good group control and are perceived as an authority figure in the group and even by CG.

It is the group teacher who derives the girl to the psychology department, due to the fact that it's been a month since she has increased the frequency of the tearing the hair and skin parts which causing bleeding wounds that become scabs which she rips and starts again, those behaviors where happening

sporadically and rarely occurred at her classroom, but now its happening at school and as far as it is known also at home, the teacher is the one who reports and ask for intervention from the psychology department.

2.2 Objective

The objective of this intervention is diminish the frequency of tearing the hair and ripping the scabs at least in a 50 % through an intervention based in cognitive-behavioral techniques.

2.3 Instruments

To gather the data the following instruments where used:

2.3.1 Interview

The interview is a essential tool at getting information. Questions are formulated to the parents about how the problem behavior started, the frequency of the behavior, emotional state (before, during and after tearing her hair and skin imperfections), the objective of this is to identify the relations between the behavior, the antecedents and the consequences as a prerequisite of the treatment, another aspect to find out is, if there has been a previous strategy to reduce or stop the behavior, if the family was already doing something about it and if they were willing to give support to the intervention, among other subjects.

2.3.2 Behavior Rating Records

A frequency observation registry (Sattler & Hoge, 2008) was carried out for "tearing the hair or skin imperfections", for which a scale 0 to 4 was designed with which the behavior during the school work the was observed and it was graded in the following manner: 0 in absence of the undesired behavior; 1 if the behavior occurred once or three times and 2 if it happened from four to six times, 3 if she presented seven to nine times and 4 if she had ten or more time during the observation period. In this case the registries were taken in one hour time intervals so that there could be a sample of most of the time in which the girl remained at school.

Table 3. Scale of Trichotillomania Frequency

Week 1:	Monday	Tuesday	Wednesday	Thursday	Friday
7a 8 am	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
8 a 9 am	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
9 a 10 am	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
10 a 11am	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4

3. Procedure

The group teacher asked the intervention with CG because she was worried that she was ripping her hair and skin imperfections, that was the main reason why it was decided to enter the classroom to carry out a five-phase program:

1) Adaptation. In which the researcher observed the behavior, familiarize with the environment and the students would adapt to her presence until the children behavior wasn't altered, it took approximately two weeks.

2) Diagnose of base line. Where the behaviors to be studied were operationally defined, the most convenient register was chosen, the contingencies which surrounded the behaviors were analyzed including the parents' interview to complete this information and it was determined that the evaluation design to be used would be the changing of the criteria, this phase lasted four weeks. In addition, frequency of hair and skin imperfections pulling were counted.

3) Intervention. Starting from the contingences analyze, it was designed the intervention which began to apply from the fifth week for the observation registers and from the adaptation and line base phases, application of the intervention program continued for six weeks until the goal was reached. To clarify before the intervention started the informed consent of the parents and others was obtained and it was proposed as objective empathizing with CG, to stablish a strong therapeutic alliance considering her previous history of therapeutic failure and her denial of being assisted by some monitor. The first encounters where were dedicated to talk about topics of her interest and what she did not like, and she became increasingly willing to work and to pay attention to what was said to her.

4) Maintenance. Lasted two weeks looking for the achievements made during the intervention remained reducing the instigators and the reinforcement, in such a manner that the application of the program changed from a continuous to an intermittent program of variable ratio.

5) Fading. In this last stage, the educational center was visited for fewer periods of time and the goal was that the girl could get used to the absence of the researcher and the intervention program itself, this stage was carried out in two weeks.

Regarding to the factors that were detected that kept the behaviors in the beginning the learning of inadequate associations (she learned those responses in nervous and boredom situations by tearing her hair) and with time the behavior became generalized, and converted into a habit, producing those behaviors not just because anxiety, but also to feel pleasure, at first she did it occasionally and the frecuency increased when they called her attention, she continued when she went to the bathroom or none was watching her according to the reports of her parents, at school she sat down and reclined her head in the table as if she was asleep, and in the mean time she continued ripping her hair or the scabs, it didn't matter if other people would express disgust when she started to bleed, the teacher used to ask her to quit the behavior or didn't noticed since she was paying attention to the rest of the class, it is worth mentioning that CG had plenty of leisure time and that she refused to do class work when requested and remained laying on the desk often covering her face and continued tearing her hair or skin.

4. Methodology

After the diagnose and considering the context in which the behavior was presented it was designed an intervention program adjusted to the necessities of CG. As an intervention technique it was used the token economy labeled "punctuation board" (see Figure 1), it was used in order to keep track of the count of the frequencies of unwanted behaviors (trichotillomania and dermatilomania). In this instrument a symbol is assigned for each unwanted behavior, in the vertical lines the presence or absence of trichotillomania was registered, and a triangle was used with the presence or absence of dermatilomania. A symbol on the left side means presence and one on the right side means absence. At the end the period of intervention of 4 hours (from 7 am to 11 am), the absence points where subtracted from the presence and if the result was minor to 0, it was agreed with the student that she was going to receive a positive reinforcer designed especially for her, as described below.

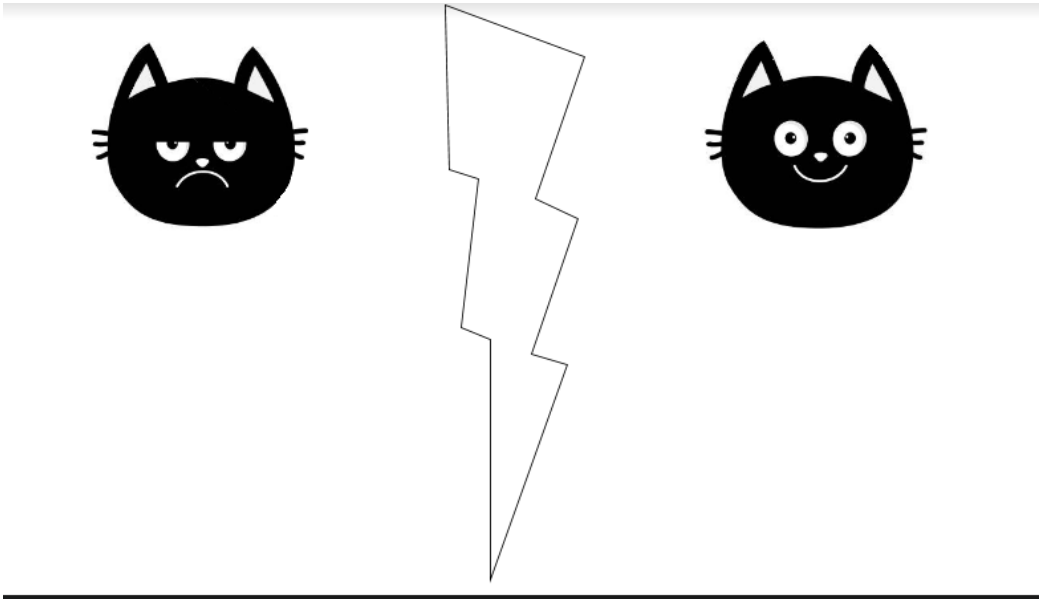

Figure 1. Scoreboard for Desired and Unwanted Behaviors

As reinforcement it was assigned a space for manual activity adapted to CG's interests, which consisted in developing of a small feline model made mainly of pompoms and wood to which she had access as long as she could accumulate the required points of the day which she could obtain once she didn't rip her hair or skin imperfection in the determined time that was increasing once the behavior stabilized, following the changing criteria evaluation design until the goal was reached.

Awareness

Sensibilization or awareness consisted in helping CG to focus on the circumstances where it was more likely to rip her hair or hurt her skin. The fact of showing the registry of her behaviors in the punctuations board is an important part of achieving this awareness so she can realize the number of times that she produces those unwanted behaviors.

Self-instruction.

To carry out this strategy of structuring the environment, a board was made with a self-instruction template (see Figure 2) to reduce the stress of class activities by making CG aware of how she could face them step by step and foresee situations that triggered her anxiety.

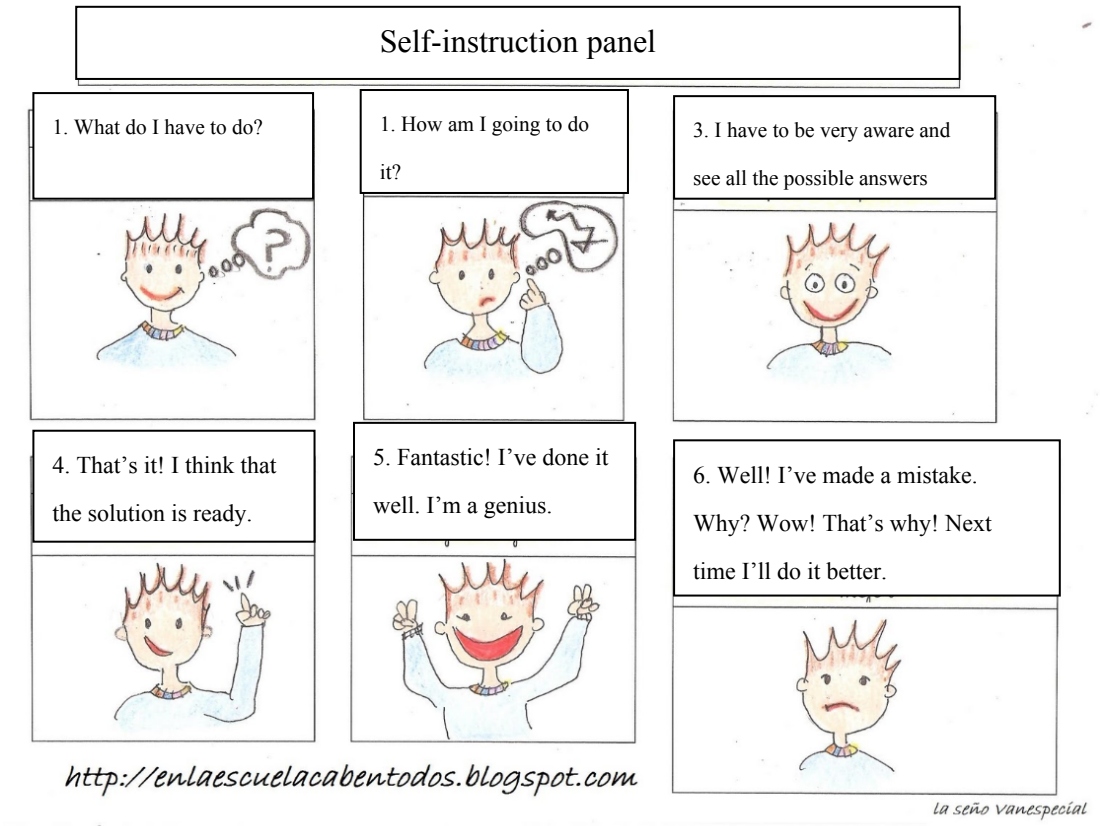

Figure 2. Self Instruction Template (Gálvez-Bachot, 2014)

5. Results

To stablish the functional analysis of the behavior, some interviews with the parents were performed, the first was during the diagnose phase and later another one was performed during the intervention. In the first interview with the parents, reported that when the girl ripped her hair they asked her not to do it and they took her by her hands, when this ended she went to the bathroom and she stayed for a while, they realized that she was continuing with those behaviors. She was taking citalopram for anxiety and was changed with concerta. Ripping her hair was an activity performed during leisure time, however, she did stop some activities so she could continue the behavior.

In the interview with her parents after the intervention was performed during the following stage and they reported that at home the unwanted behavior were no longer presented and that she was not going to the confine herself at the bathroom so she could continue with ripping her hair and scabs, during leisure time from time to time, she still ripped some scabs, but she doesn't have as many, since she is

not scratching often as before.

When the intervention started the following work hypothesis was formulated, one cognitive behavioral intervention can reduce the trichotillomania and dermatillomania. During the observation of the effects of the intervention and in the posterior moments, it can be observed a diminish in the tearing the hair frequency before and after the intervention. The study of the possible differences between the records in the frequencies obtained in each of the pre and post hair tearing events, indicates that during the pre record, a higher mean score was obtained (M = 2.54, SD = .672) compared to the post registry (M = .413, SD = .309), the difference being statistically significant (t = 9.66, p <.001) and the effect size very large (Cohen's d = 4.06).

As we can see in the graphic of the Figure 3, Trichotillomania and dermatillomania behaviors decreased as the intervention and the criteria change was being applied, the behavior was restricting itself every day more.

No significative differences were found between the first week to the fifth, but there were from the sixth week which corresponds to the second intervention week, when it was applied a more strict criteria to get the reinforcement. There as a big effect on the difference registries pre and the fifth week of the intervention (started since the previous stage) (Cohen d =0.78) and a great effect since the sixth registry week (Cohen d >4.30) (see Figure 3).

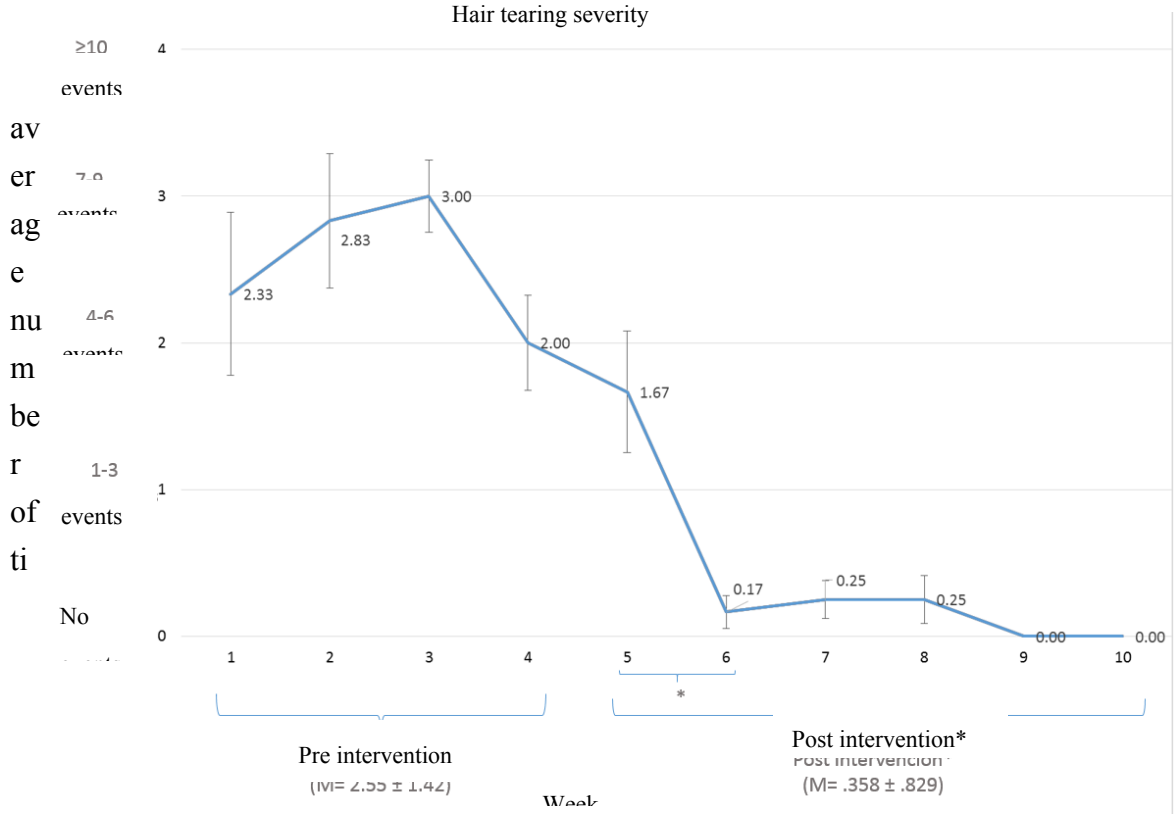

Figure 3. Average on the Number of Times of Hair and/or Scabs Ripping by Weeks pre (1 to 4) and Post (5 to 10) *= p <.001

6. Discussion

The trichotillomania and the excoriation or dermatillomania are complex disorders that have received little attention in the field of research. The results of this study show the efficacy of one intervention based on cognitive and cognitive behavioral techniques for the treatment of those symptoms in a 11 years old girl whose core disorder is ASD since the improvement of the symptoms not only were presented during the intervention phase but also in the months after since the case was followed during the whole school year and there was no remission of the symptoms.

During the first weeks of the intervention, it was important to work in alliance with the monitor and CG, since she had difficulties on working with new people, it should be noted that this aspect is essential for the success of any intervention program, as well as enough time was taken to understand the functional analysis of the behavior, stablishing clearly the triggering events of this and the following consequences that somehow were reinforcing trichotillomania and dermatillomania.

It is worth mentioning that the administration of psychiatric medications was of great help in the management of this treatment, however, the school monitoring and the adjustments to certain tasks that caused tension complemented.

It is of great importance parental support so that the behavior does not appear appear again since the family situation of CG is that the parents are not very consistent with the agreements that are made with them and do not follow the recommendations for a long time, which could lead to relapses, as a consequence of this, so it is recommended that the family attend to a therapeutic or psychological support process to know how to act in case of relapses and in general to understand how to handle certain situations with GC since she is currently an adolescent and has an ASD condition which they (the parents) often don't know how to handle.

Verbal or visual anticipation of certain event in children with ASD reduces anxiety in a great manner also it helps them to accommodate to the new situation and showing them more willing to perform, which is what was tried to do with the self-instruction boards (Salvadó et al., 2012).

It is necessary to remember than the behaviors and manifestations of the people with ASD are symptoms of a complex cognitive structure and that is the reason to know it and it can be achieve throughout a literature revision of the techniques such as the interview or the observation to stablish a functional analysis of the behavior and understand what is triggering, what stops it and what is reinforcing, besides knowing to understand the disorder from the inside in order to make an accurate intervention and adjusted to the personal needs.

From the intervention's results, can be concluded that the used techniques have been used effectively to the treatment of the student which confirms what previous studies to the present one have been proved regarding the effectivity of this approach and the evidence on how can it be used in children with ASD with high levels of functioning.

As limitations on the present work we find that the treatment with children that have this condition, Autism Specter Disorder requires consistency, structure and patience, occasionally the long term

effectiveness can be seen, so the strategies should be applied and also the technique that have been proven to be effective for whoever is in charge of the group and the work with this children at school in this case the school teacher who from time to time had troubles dividing her time with CG and the rest of the students. In second place, the need for regular curricular adjustments to reduce the girl's anxiety is also highlighted, since one of her anxiety triggers are when tasks are assigned that are not in accordance with her abilities, the girl then ignores the task, becomes demotivated and increases the periods of leisure which are conducive to her starting to pull out her hair and scab over her skin.

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