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Socioemotional development in children with callous-unemotional traits: A case study of a multimodal intervention

María del Mar Gallego-Matellán¹, Laura López-Romero^{2 y 3}, & Ana C. León-Mejía^{4 y 5}

¹Private Practice. Official College of Psychologists of Castile and Leon, Spain

²Centre for Criminological and Psychosocial Research. Örebro University, Sweden

³Departamento de Psicología Clínica y Psicobiología. Universidade de Santiago de Compostela, Spain

⁴The International University of La Rioja, Spain

⁵The Open University, United Kingdom

Abstract

A subgroup of children with conduct disorder (CD) has callous unemotional traits (CU, e.g., lack of empathy, caring behaviours and remorse), which predicts a negative evolution of this disorder. Responses to empirically supported interventions are very low in children with CD and CU traits. This case study presents an individualized intervention with an 11-year-old child who shows a stable and aggressive pattern of disruptive behaviour (CD and attention-deficit/hyperactivity disorder) and severe CU traits. The goals of the intervention focused on both emotion recognition and parent training. The results of the treatment presented in this case study show advances in socioemotional development along with a decrease of problematic conduct, which improve the child's ability to adapt to his environment. The need of personalizing and adjusting treatments aimed at modifying problematic conduct in children with CU is discussed to shed light on future approaches to clinical intervention.

Keywords: callous-unemotional traits; conduct disorder; parent training; emotional recognition; attention-deficit/hyperactivity disorder.

Resumen

Desarrollo socioafectivo de un niño con insensibilidad emocional: un estudio de caso. Un subgrupo de niños con problemas de conducta (PC) presenta también rasgos de insensibilidad emocional (falta de empatía, culpa y ausencia de conducta de cuidado) que predicen una evolución negativa del trastorno. Estos niños muestran baja respuesta a las intervenciones con apoyo empírico para los PC. Este estudio de caso presenta el tratamiento de un niño de 11 años con un comportamiento disruptivo severo (conducta problemática y TDAH) y pronunciados rasgos de insensibilidad emocional. Los objetivos de la intervención se centraron en el entrenamiento en reconocimiento emocional y en el entrenamiento parental. Los resultados del tratamiento muestran mejoras en el desarrollo socioafectivo del niño y disminución de las conductas problemáticas favoreciendo su adaptación al entorno. Se discute la necesidad de adaptar los tratamientos para modificar las conductas problema en los niños con insensibilidad emocional.

Palabras clave: insensibilidad emocional; problemas de conducta; entrenamiento parental; reconocimiento emocional; déficit de atención con hiperactividad.

Conduct problems are the most common psychiatric disorders in the child and adolescent population (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015), but there is a great variability in the types of behavioural problems presented, the impairment and deficits associated with them, and treatment responses (Frick, Ray, Thornton, & Kahn, 2014). Within the heterogeneity of these disorders it is worth differentiating a subgroup of children with early-onset conduct disorder (CD, hereafter) that follows a stable and severe pattern of antisocial behaviour,

callous-unemotional traits (CU, hereafter), impulsivity and narcissism that is similar to those found in adult psychopathy (Frick & Ellis, 1999). This subgroup falls within a temperament style in which the development of emotional regulatory abilities is affected, making these children less empathetic, less fearful of punishment and guilt, and less conscience of their actions (Frick & Morris, 2004). Also, the early onset of psychopathic traits predicts an increased risk of antisocial behaviour and aggression (Blair, 2013), as well as a higher frequency,

Correspondence to:

María del Mar Gallego-Matellán.

Private Practice. Official College of Psychologists of Castile and Leon.

C/ Santa Teresa, 24-Bajo, 49013, Zamora, Spain.

E.mail: margallego@cop.es

persistence and severity of conduct problems (Blair, Leibenluft, & Pine, 2014), which ultimately results in a negative evolution of the disorder as was showed by several longitudinal studies (Lopez-Romero, Romero, & Andershed, 2015).

Literature on how children with CU traits perceive social information reveals difficulties in cognitive processing, inappropriate responses to threatening emotional stimuli (Viding et al., 2012), as well as low empathic responses to anxiety and distressing cues (Lockwood et al., 2013). Such deficit in the child's capacity to recognise and experience sadness and fear has been associated with a higher probability of developing violent behaviour (Blair, 2001), and it has also been related to proneness to show both reactive and proactive aggression (Fanti, Frick, & Georgiou, 2009).

Changes made to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) in its fifth edition includes a specifier for conduct disorders that help us to delineate this subgroup of individuals (with CU traits), who exhibit limited prosocial emotions, lack of remorse or guilt, callous-lack of empathy and shallow or deficient affect (APA, 2013).

Despite the severity of conduct problems in children with CU traits, there are limited studies on treatment outcomes, and these provide poor evidence of actual improvement (Hawes, Price, & Dadds, 2014). Yet, recent research suggest that intensive interventions focused on children's affective and interpersonal styles, along with the training of their unique emotional, motivational, and cognitive impairments are effective and reduce both severity of their CD and their level of CU traits (Frick et al., 2014). Within clinical treatment of CD, parent training has been proved as effective in patients with an early onset (Michelson, Davenport, Dretzke, Barlow, & Day, 2013), but as children grow older they need a more complex approach focused both on parent training and individual intervention. In this latter case, it is particularly important to assess any cognitive deficit related to emotional regulation, as well as to train the child or adolescent in social skills linked to conflict solving, awareness, and affective perspective taking (Frick et al., 2014).

Parent's implication during therapy is paramount to success since the interplay between temperamental traits and family dynamics is precisely what gives raise to CD (López-Romero, Romero, & Gómez-Fraguela, 2012). In this sense, it has been suggested that parents-children interactions and parents' responses to the emotions and behaviour of their children may explain the development and stability of CU traits (Psalich, Waschbusch, Dadds, & Hawes, 2014). These findings suggest that parents' behaviour and emotional interventions can modify the developmental course of psychopathic features (McDonald, Dodson, Rosenfield, & Jouriles, 2011), a fact that may have significant implications for clinical practice. In a nutshell, when treating children with CD and CU at the family level, improving parenting skills and developing positive parenting styles is essential to gaining success (Elizur, Somech, & Vinokur, 2016). It has also been highlighted that children who have high CU levels do not respond well to punishment, and therefore, it is more effective to implement strategies that focus on reward and positive reinforcement rather than using punitive measures or disciplinary strategies (Frederickson, Jones, Warren, Deakes, & Allen, 2013).

There is not one single way to assess CU traits successfully, and therefore interventions need to be tailored to the specific needs of clinically referred children. Those needs may vary

according to particular mechanisms underlying their behaviour (Frick, 2001). Some studies have also highlighted that we need to design treatments focused on empathy and socioemotional development (Högström, Enebrink, & Ghaderi, 2013). Emotion recognition training has proven itself to be a clinical intervention with great potential, since it produces significant improvement in affective empathy and CD. And more interestingly, when combined with parent training it has proven effective to treat high CU traits (Dadds, Cauchi, Wimalaweera, Hawes, & Brennan, 2012). As for emotion recognition, some studies show how children exhibiting CU traits have attention deficits when facing visual stimuli that evocate negative emotions (Leist & Dadds, 2009). More specifically, attention to the eye region is reduced (Dadds, El Masry, Wimalaweera, & Guastella, 2008), and this impairment is also observable when interacting with their parents (Dadds, Allen, et al., 2012). Consequently, some studies suggest the fostering of eye contact with caregivers as part of the treatment for children with CD and CU traits (Dadds et al., 2014), advising parents to promote eye contact in everyday interactions so as to reinforce emotional commitment and positive relationships (Hawes et al., 2014).

Based on the foregoing, the present study aims to describe the case of a child with CP and high CU traits, and the clinical intervention that was implemented, which included dynamic therapies to promote socioemotional development and reinforcement learning by working with both the kid and his family. By addressing most of those aforementioned aspects that have been raised as critical when treating problematic children high on CU traits, and after tailoring the intervention to the specific needs of the child, we expect not only an overall decrease of his problematic behaviour (with an increase in prosocial behaviour), but also some relevant advances in child's socioemotional development and in parents-child relationship, leading to improve the child's adaptation to his familial, scholar, and social environments.

Case description

Patient's identification

In order to protect the patient's anonymity we will refer to him as Juan, which is a fictional name. Juan was a 6th grade student of 11 years and 3 months when he came to the clinic. He was living at home with his parents and a 6-year-old brother. Juan was displaying several pathologies that made him need constant medical care at the infant hospital and undergo several diagnostic assessments. He was diagnosed with attention-deficit hyperactivity disorder (ADHD) at 5 years old, and since then he has been treated pharmacologically with methylphenidate, which was replaced with an antipsychotic drug during more aggressive episodes. His parents brought an evaluation of Juan's IQ of 122 to the clinic.

Reason for consultation

The severity of his conduct problems forced his parents to come for consultation as they were overwhelmed and felt that living with him was no longer possible. The degree of confrontation, disobedience, and aggressiveness became unmanageable. At home, conflict was constant, and at school Juan was frequently the subject of disciplinary measures, warnings and reprimands.

Problem history

Juan’s behavioural maladjustment was severe and present from infancy. During his first years at preschool, his behaviour was outside established norms and included continuous conflicts with authority figures, as well as aggressions towards his peers. Despite his records, he never underwent psychological therapy. With time, he evolved towards a more severe pattern of problematic behaviour and his profile also turned more aggressive, which made his psychiatrist recommended confinement at a state protection centre.

Case evaluation

A pre-test post-test evaluation design was used.

T2F that in Spanish stands for *Drawing Test of Two Emotional Human Figures* (Maganto & Garaigordobil, 2009). This test allows us evaluate both the degree of mental maturity and emotional issues in children (52 maturation items and 42 emotional indicators). Score in percentiles let us identify emotional problems.

Basic Empathy Scale (BES), adapted by Oliva et al. (2011) The subscale of affective empathy is composed of 11 items that measure emotional responses to another person’s emotions. The subscale of cognitive empathy is composed of 9 items that measure the understanding of another person’s affective state. The ratings goes on a 5-point Likert type scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

TMMS-24 (Fernández-Berrocal, Extremera, & Ramos, 2004), which is the Spanish short adaptation of the *Trait Meta-Mood Scale* (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995). It is composed of 24 items and 3 subscales or dimensions: emotional perception, emotional comprehension, and emotional regulation. Scores of each scale are classified in 3 levels: High (excellent), medium (adequate) and low (must be improved). Responses follow a scale that goes from 1 (*Totally disagree*) to 5 (*Totally agree*).

EIS, which in Spanish stands for *Cognitive Strategies for Social Interactions Questionnaire* (Garaigordobil, 2000). This questionnaire explores which cognitive strategies (assertive, aggressive and passive) are available and used to solve 4 types of conflictive social situations. The strategies that are repeated in different situations are only scored once. A strategy is deemed assertive when the situation is confronted directly and conduct displayed to achieve the goal is non-aggressive. A strategy is regarded passive when the problematic situation is not approached directly and we observe responses of inhibition, submission and avoidance. Finally, a strategy is considered aggressive when the response triggers aggressive and negative conduct such as threats, physical and verbal aggressions, dismissing others, blackmailing, etc.

Prosocial Behaviour Questionnaire (Weir & Duveen, 1981). This questionnaire was designed to be filled out by teachers and has also been used with parents (Garaigordobil 2005). It has 20 statements that refer to children’s behaviour, making it possible to gather information about their prosocial behaviour. Scoring goes from 0 (*Never*), 1 (*Sometimes*) to 2 (*Almost always*). Higher scores are indicative of higher levels of the intended constructs.

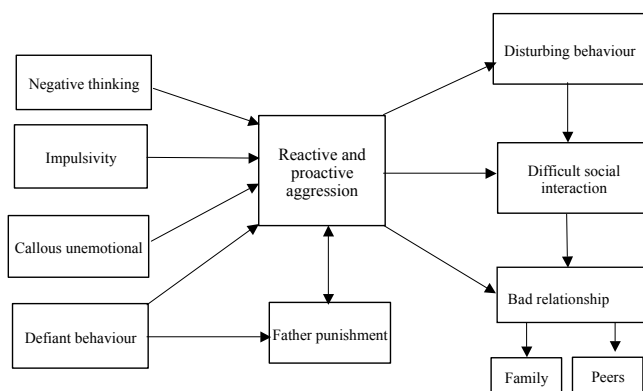
Topographical and functional analysis

Parents were given a behavioural record sheet so they could register any disruptive conduct of Juan, allowing us to create a baseline for his treatment. Since his parents declared that his outbursts were so many, and that to write all of them down was too time consuming, they decided to register only the most important ones, i.e., those that would stand out because of their intensity or severity.

Juan presented oppositional and defiant behaviour, was impulsive and used both proactive and reactive aggression when interacting with others. He was aggressive with his peers in any context, and at home he beat his younger brother and was particular hostile towards his father, usually in response to his verbal and physical punishment. Juan also mistreated animals, inflicted harm to himself, and showed no sign of empathy for other people’s feelings. He used threats and obscene language, conveyed highly violent thoughts verbally, and openly expressed willingness to kill. He would interpret social situations as hostile, was manipulative, remarkably narcissistic and showed total disregard for others. Disciplinary methods at home differed between his mother and father; leading to show a warmer relationship with his mother.

Based on the information gathered from family interviews and case assessment, it was designed a multimodal intervention, including both cognitive-behavioral and emotional tasks. The intervention was designed to work both with the child and his parents so as to change family dynamics. Parents were trained and given instructions to continue treatment at home. The main goal of this intervention was to decrease the level of hostility and help the patient adapt to different family and school contexts. Overall, the focus of the intervention was to promote socio-emotional development by involving Juan, his parents, and also having some regular contact with his teacher in order to obtain updated information of his evolution at school.

Figure 1- Functional analysis



Treatment implementation

The therapy lasted 10 months. With Juan, weekly during the first 8 months and for the last two months we reduced them to one session each 15 days. With his parents, a total of six sessions were carried out at the beginning of the treatment, at fortnightly intervals, to give them instructions as to how to continue treatment at home and reinforce intervention. After Juan’s sessions, we also had brief interviews with them so as to follow up his evolution.

Parent's intervention

The intervention with Juan's parents included face-to-face psychoeducative sessions with specific instructions on conduct management, positive reinforcement of desirable behaviours, as well as encouragement of appropriate emotional responses. Over the course of treatment, they were instructed to implement the emotional development interventions carried out at the clinic during daily life activities. Additional support was given providing regular contact via email and mobile (i.e., WhatsApp). A follow-up of the changes implemented by his parents was done and, in order to do so, we gathered information on the evolution of family dynamics.

Child's intervention

At the clinic we implemented a cognitive behavioural intervention with Juan that focused on mechanisms underlying aggressive conduct. We also used gestalt techniques that allowed him to express his emotions nonverbally during the sessions. We chose an emotion recognition program aimed at developing perspective taking and affective empathy abilities as well as to improving socioemotional interactions. To this purpose, we planned several tasks to be completed during the sessions, such as reading and watching of short stories and films appropriate for his age, fostering subsequent dialogue about the emotional content of the stories, and displaying images for emotion recognition.

This second task was designed *ad hoc* for the specific purposes of the intervention. By using a laptop, the child is presented with six slides containing a number of faces of a single child expressing different emotions (anger, happiness and worry), each of which was intercalated with a neutral emotion face. We worked on this task during two sessions. In order to enhance analysis and comprehension of the images presented, we asked Juan to recognise the emotion and to invent a story about what could be happening to the child in the picture. During the following sessions, in which different images were displayed on the laptop, we worked on a play task called "what is going on". A total of 56 slides picturing different scenes were presented, eight in each session; these included photographs of different children, family scenes, play situations, people crying, war contexts, sick people, etc. Each picture was presented along with a few questions that helped Juan to describe the scene that he was looking at and to comment on any emotional aspects of the picture: (1) *What are the names of the characters that you see?* (2) *Where are they?* (3) *What are they doing?* (4) *What happened to them?* and (5) *How do they feel?* The slide was kept until Juan responded to all the questions of the task. When we began the therapy, all his answers showed discredit, disrespect, too often they were insulting, and he used to ridicule the characters in the pictures. He also acted the clown, particularly, when he was presented with negative emotions, in which case he tried to avoid giving a coherent description of the visualized image. We insisted that he had to correct his expressions when talking about the scenes, and we did not play the next one until Juan had given a complete description using non-aggressive language.

In order to develop empathy, we adopted Dadds' eye contact methodology, which has been hypothesised as an effective method to treat children with CU traits, since it can enhance their responsiveness to their caregivers (Dadds et al., 2014).

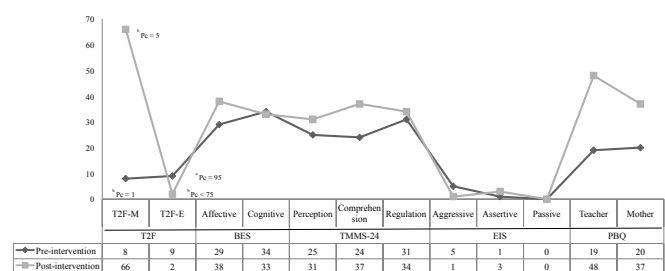
Following the "I love you" Dadds' task, parents were given instructions to ask Juan explicitly to look into their eyes when they were using affectionate expressions such as "I love you", "I want to take care of you", etc. We suggested that this practice has to be introduced in different daily life situations, and recommended that at least it should be done once a day. At the clinic, we took any opportunity to convey positive messages related to the therapeutic relationship, such as "I want everything to go well for you", "I care about you a lot", "I want to help you", etc., while looking into the eyes, and we did so in every session.

Finally, to ease aggressive verbal expressions used by Juan, we corrected them during our sessions, asking him to express it again in a non-aggressive way. Also, he was given instructions to do so at home, and to redirect any inadequate conduct.

Results

As can be observed in Figure 2, there was substantial improvement in most of the analysed variables. Firstly, results from the T2F revealed a significant increase in mental maturity although in terms of percentiles the change was not so remarkable (from Pc 1 to Pc 5); conversely, scores in the emotional problems subscale showed a significant improvement from pre- (i.e. Pc > 95; indicative of emotional problems) to post-test (Pc < 75; indicative of no emotional problems). Secondly, as expected, there was an increase in affective empathy but not in cognitive. Thirdly, there seems to be an improvement in emotional intelligence with higher scores in the post-intervention measures of emotional perception, comprehension and regulation. Both perception and regulation scores showed a slight increase within the medium level (i.e. adequate) at pre- and post-intervention. Yet, Juan enhanced his comprehension level notably, going from low (must be improved) to high (excellent). Fourthly, in terms of cognitive strategies for social situations there was a decrease in aggressive strategies and an increase in assertive social strategies. Finally, prosocial behaviour increased remarkably according to his teacher and mother.

Figure 2. Data collected at pre- and post-intervention



T2F = Two Human Figures Test; BES = Basic Empathy Scale; TMMS-24 = Trait-Meta Mood Scale; EIS = Cognitive Strategies for Social Interactions Questionnaire; PBQ = Prosocial Behavior Questionnaire

^a Score equal or above percentile 95 confirms the existence of emotional problems

^b Score under percentile 75 indicates no emotional problems

Additional information gathered in therapy from parents, as well as through other external sources, led us to conclude that Juan's behaviour and attitudes improved significantly. His disturbing behaviour is gone and he now behaves adequately in

different social and family contexts. We had another consultation three months after the therapy finished and we could see that progress achieved during therapy was steady.

Discussion

Drawing on the literature on CD and CU traits, we can see how designing specific treatments aimed at targeting cognitive and socioemotional deficits can dramatically improve the possibility of success (Wilkinson, Waller, & Viding, 2016). In this vein, the case presented in this paper has taken into account research linking empathy and externalising conduct to prosocial behaviour (Garaigordobil & Maganto, 2011). Juan's behaviour was greatly influenced by the characteristic of his ADHD, showing high impulsivity. The emotional insensitivity traits made the treatment of his conduct problems even more complicated. The inclusion in the therapy of socioemotional development dynamics was crucial to change the conduct responses of the child. At the same time, family implication was decisive, firstly to modify negative interaction patterns at home, and secondly, to give continuity to healthier dynamics developed at the clinic. The work presented in this paper is in line with those studies that provide evidence that antisocial conduct of children with CU, as persistent as they are, can be modified if core deficits are addressed during individualised interventions (Kimonis, Bagner, Linares, Blake, & Rodriguez, 2014; Kolko et al., 2009). This study confirms that this subgroup of patient benefits from a new and personalized treatment similar to the one we have implemented here, focusing on the emotional characteristics of children with CU traits. Particularly important is to address interventions towards emotional recognition as suggested by other scholars and practitioners (Lui, Barry & Sacco, 2016). Likewise Datyner, Kimonis, Hunt and Armstrong (2016), developing the socioemotional skills of the patient was key to obtain those cognitive changes that were necessary to improve his empathetic responses. Since parenting practices and child behaviour problems are related and have been discussed widely in the scientific literature (Forehand, Lafko, Parent, & Burt, 2014; Shaffer, Lindhiem, Kolko, & Trentacosta, 2013), we included parental training in our multi-modal intervention. When designing our approach, we considered innovative and empirical works that have proven successful like that of Dadds et al. (2014), which is aimed at impaired eye contact typical of children with CU traits. In sum, and based on prior research, we expected a reduction on CP severity and CU manifestations by implementing an intensive individual and parents-based intervention focused on the unique child's affective, interpersonal and behavioural style (Dadds et al., 2012; Frick et al., 2014; Högström et al., 2013). The positive evolution of the case presented here has confirmed that our therapy approach was in the right direction, and this result may shed light on similar cases and multi-modal interventions.

Notwithstanding, the potential implications of this intervention for future clinical designs should be interpreted considering the following limitations. First, the results presented in this study are preliminary since this is to our knowledge the first case study published outside the Anglo-Saxon context. Similarly, some of the strategies proposed for this intervention have been created *ad hoc* and, therefore, replication is needed to establish the effectiveness of the treatment. Second, a more

extensive follow-up should be done to evaluate whether the improvement in Juan's behaviour is stable across time and contexts. Third, with respect to CU traits, it should be noted that most available instruments have been developed for research purposes (Colins et al., 2014). For this reason, it is difficult to state that there was an actual change in the level of CU traits beyond the improvement in affective empathy or emotional intelligence that we observed and measured.

To sum up, the inclusion of a specifier for conduct disorder in DSM-5 based on CU traits, makes it necessary to put novel or adapted interventions that are tailored to the specific needs of this particular subgroup of children with CD and CU traits to the test. This study has aimed to shed some light on this field making room for further research and discussion. Limitations of this work are related to the nature of the clinical intervention that makes it difficult to apply the methodological rigor of research. Yet, the positive evolution of Juan shows us how advances in research can be applied successfully to the clinical setting by using a multimodal and flexible intervention specifically adapted to the CU traits displayed by the patient (Wilkinson et al., 2016). This opens a window of hope, and it helps us to keep making progress in this field, and treat children with CD and CU traits effectively.

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Conflict of interests

The authors declare that they have no competing interests.

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