

# Letter to the editor

## Impulsivity and executive function in borderline personality disorder

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Dear Editor,

Borderline Personality Disorder (BPD) is one of the most controversial mental disease, because of the difficulties in its evaluation, diagnosis and treatment, as well as its prevalence in the general<sup>1</sup> (5.9%) and clinical<sup>2</sup> (10% -25%) population. Research in this field did not get to define a clear etiopathogeny, although scientific community tends to agree that both organic and environmental factors might be involved<sup>3,4</sup>. It has been demonstrated that people with BPD reveal difficulties in certain cognitive activities, associated to a deficit in an organic level<sup>5</sup>. Actual studies reveal an association between the dysfunction of the frontal lobe and the BPD, showing lower levels in attention, cognitive flexibility, learning, memory, processing speed and visual-spatial abilities<sup>6</sup>. In fact, it has been suggested that specific neurological alterations could be present in specific brain regions among persons with BPD<sup>7</sup>, which points towards the possibility that certain functions located in these areas might be affected, such as the executive function (EF).

The executive function involves cognitive activities that can be classified in five main groups: 1) initiative, volition and creativity; 2) planning ability and organization; 3) fluency and flexibility; 4) selective attention processes, concentration and operative memory and 5) monitoring processes and inhibitory control<sup>8</sup>. EF is responsible for establishing purposes and objectives and for planning the actions to carry out them<sup>9</sup>. Furthermore, previous research has suggested an association between difficulties in attentional functions and the EF deficits in BPD population, by the use of specific instruments such as the Wisconsin Card Sorting Test – WCST<sup>10</sup>. However, Biskin et al.<sup>11</sup> conducted a research analyzing the interaction between impulsivity and EF, utilizing the Barratt Impulsiveness Scale (BIS) and WCST, but found no statistically significant results.

Because impulsivity is one of the main traits associated to BPD, the current research analyzed this variable and its effects in persons with BPD over the executive function. In this way, we could determine whether there might be a relationship between BPD and the alteration in EF, and whether impulsivity could be responsible of this alteration. Thus, the main hypothesis predicted that impulsivity would be negatively correlated with the performance in executive function tasks.

## Method

### Participants

The sample was constituted of 45 participants: clinical group (22 participants with BPD) and control group (23 participants). Inclusion criteria: meet criteria for the diagnosis of BPD utilizing the by DMS-IV TR manual and an age over 18 years old.

### Measures

*Structured Clinical Interview for DSM-IV Axis II of Personality Disorders (SCID-II)*<sup>12</sup>, Spanish version<sup>13</sup>. It is an auto administered scale, which contains 119 items with dichotomous (true/false) answers and a semi-structured clinical interview.

*Barratt Impulsiveness Scale (BIS)*<sup>14</sup>, Spanish version<sup>15</sup>. Contains an overall impulsiveness scale and three subscales: motor impulsiveness, cognitive impulsiveness and non-planning impulsiveness<sup>16</sup>.

*Wisconsin Card Sorting Test (WCST)*<sup>17,18</sup>. Assesses the abstraction capacity, the formation of concepts and the change in cognitive strategy as an answer to the changes that happened in the environmental contingencies<sup>19</sup>.

### Procedures

The assessment was made in two phases. Participants answered the BIS questionnaire and afterwards the WCST was delivered. All of the participants signed the informed consent form and the APA Ethics Code was respected throughout the whole study.

Nominal variables were described using frequency and percentages, whereas average and standard deviation were employed to describe continuous variables. In order to compare the differences between groups, Student's T-test and Chi-squared tests were applied. Moreover, to analyze the association between variables Pearson Product-Moment Correlation coefficients were employed.

# Letter to the editor

## Results

Control groups participants were matched attending to age and gender variables (age  $\rightarrow t_{(42)}=0.24, p=.815$ ; gender  $\rightarrow \chi^2=0.07, p=.795$ ). There were differences in the levels of studies, portrayed by a greatest presence of persons with high level studies in the control group (78.26%) as compared to the clinical group (31.82%).

In the comparison between groups of impulsivity (BIS) and executive function (WCST) variables, there were differences in the overall impulsivity  $t_{(41)}=2.81, p=.008$ , with higher levels in the clinical group. Regarding the subscales of the BIS there were significant differences in motor impulsiveness  $t_{(41)}=3.31, p=.002$  and in non-planning impulsiveness  $t_{(41)}=2.05, p=.046$ , with higher results in the BPD group. The results of WCST did not show differences between both groups in no one of the indicators of the instrument.

The total level of impulsivity showed a positive correlation with the failure to maintained set ( $r=.39, p=.010$ ) and with the trials to complete first category ( $r=.33, p=.033$ ; see Table 1), and a negative correlation with the number of completed categories ( $r=-.32, p=.041$ ). The non-planning impulsivity was the only type of impulsivity that showed significant correlations regarding the executive function variables, obtaining a positive correlation with the failure to maintained set ( $r=.38, p=.012$ ). The perseverative errors showed a very low positive correlation regarding the levels of impulsivity ( $r=.16, p=.323$ ), although the non-perseverative errors showed a greater trend, being more evident in the case of the non-planning impulsivity ( $r=.30, p=.051$ ).

## Discussion

Taking into account the differences between groups, the clinical group showed higher levels of impulsivity than the control group, although the outputs in executive function were similar in both groups.

Results obtained in the present study confirm one of our main hypotheses: there seems to be an association between impulsivity and executive function. The total score of BIS showed the association between impulsivity and executive function by the following indicators of WCST: trials to complete first category, number of categories completed and failure to maintain set. These findings contrast with the outcomes of other authors<sup>11</sup>, who could not find the association between those two variables. The non-planning subscale correlated with the WCST indicator "failure to maintain set". These indicators are associated with the attention capacity and the inhibitory control. Therefore, we could suggest that between all of the cognitive functions that the EF contains, the selective attention and the inhibitory control are the ones potentially more affected by the impulsivity against the cognitive flexibility and the learning. The specificity of non-planning regarding the WCST demonstrated that the planning of the task could be the indicator with the most direct impact in this test.

The sample size is the limitation of the present study, not allowing enough statistical power to detect possible differences between groups or the associations between variables.

Our findings suggest that there are not significant differences between both groups in EF and that the

**Table 1** Association between impulsivity and executive function (Correlations between BIS and WCST scales)

Total number of errors	Impulsivity			
	Total	Cognitive	Motor	Non-planning
Perseverative responses	0.19	0.12	0.03	0.24
Perseverative errors	0.16	0.12	0.04	0.17
Non-perseverative errors	0.16	0.12	0.04	0.17
Percent conceptual level responses	0.21	0.11	0.02	0.30
Number of categories completed	-0.23	-0.03	-0.21	-0.18
Trials to complete first category	-0.32*	-0.15	-0.19	-0.28
Failure to maintain set	0.33*	0.16	0.27	0.20
Learning to learn	0.39**	0.24	0.16	0.38*
Aprender a aprender	0.05	-0.02	0.12	-0.02

\* $p<.05$ ; \*\* $p<.01$

BIS: Barratt Impulsiveness Scale; WCST: Wisconsin Card Sorting Test

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## Letter to the editor

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differences in impulsivity do not have a significant impact on the EF. However, people with BPD manifest differences in cognitive performances<sup>20,21</sup>. Thus, there is an urgent need of further research that could shed light on the difficulty that BPD participants seem to present in their cognitive performance.

In conclusion, our study confirms previous literature in that it suggests differences in impulsivity levels between people with BPD and a control group, although it did not allow concluding that this impulsivity was directly affecting the performance in EF. Nonetheless, our results showed that impulsivity could be potentially disturbing some indicators of EF such as that non-planning impulsiveness could have a greatest specificity with EF tasks in general population.

### REFERENCES

1. Stinson FS, Dawson DA, Goldstein RB, Chou SP, Huang B, Smith SM, et al. Prevalence, correlates, disability, and comorbidity of DSM-IV narcissistic personality disorder: results from the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions. *J Clin Psychiatry*. 2008;69(7).
2. Leichsenring F, Leibing E. The effectiveness of psychodynamic therapy and cognitive behavior therapy in the treatment of personality disorders: a meta-analysis. *A J Psychiat*. 2003;160(7):1223-32.
3. Zerkowicz P, Paris J, Guzder J, Feldman R. Diatheses and stressors in borderline pathology of childhood: The role of neuropsychological risk and trauma. *J Am Acad Child Adolesc Psychiatr*. 2001;40(1):100-5.
4. Zanarini MC, Frankenburg FR, Hennen J, Silk KR. The longitudinal course of borderline psychopathology: 6-year prospective follow-up of the phenomenology of borderline personality disorder. *Am J Psychiat*. 2003;160(2):274-83.
5. Travers C, King R. An investigation of organic factors in the neuropsychological functioning of patients with borderline personality disorder. *J Pers Disord*. 2005;19(1):1-18.
6. Ruocco AC. The neuropsychology of borderline personality disorder: a meta-analysis and review. *Psychiatry Res*. 2005;137(3):191-202.
7. Chanen AM, Velakoulis D, Carison K, Gaunson K, Wood SJ, Yuen HP, et al. Orbitofrontal, amygdala and hippocampal volumes in teenagers with first-presentation borderline personality disorder. *Psychiatry Res Neuroimaging*. 2008;163(2):116-25.
8. Lopera F. Funciones ejecutivas: aspectos clínicos. *Rev Neuropsicol Neuropsiq Neurociencias*. 2008;8(1):59-76.
9. Goldberg E. *El cerebro ejecutivo*. Barcelona: Editorial Crítica; 2002.
10. Fertuck EA, Lenzenweger MF, Clarkin JF. The Association between Attentional and Executive Controls in the Expression of Borderline Personality Disorder Features: A Preliminary Study. *Psychopathology*. 2005;38(2):75-81.
11. Biskin RS, Paris J, Renaud J, Raz A, Zerkowicz P. Outcomes in women diagnosed with borderline personality disorder in adolescence. *J Can Acad Child Adolesc Psychiatry*. 2011;20(3):168.
12. First MB, Gibbon M, Spitzer RL, Williams JBW, Benjamin LS. *Structured Clinical Interview for DSM-IV Axis II Personality Disorders, (SCID-II)*. Washington, DC: American Psychiatric Press, Inc; 1997.
13. First MB, Gibbon M, Spitzer RL, Williams JBW, Benjamin LS. *Entrevista Clínica Estructurada para los Trastornos de Personalidad del Eje II del DSM-IV*. Barcelona: Masson; 1999.
14. Barratt ES. Impulsiveness and aggression. In: Monahan J, Steadman H, eds. *Violence and mental disorder: Developments in risk assessment*. 1994;10:61-79
15. García-Portilla MP, Bascarán MT, Saiz-Martínez PA, Bousoño M, Bobes J. *Evaluación de la impulsividad*. Barcelona: Grupo Ars XXI de Comunicación; 2005.
16. Patton JH, Stanford MS. Factor structure of the Barratt impulsiveness scale. *J Clin Psychol*. 1995;51(6):768-74.
17. Grant DA, Berg E. A behavioral analysis of degree of reinforcement and ease of shifting to new responses in a Weigl-type card-sorting problem. *J Exp Psychol*. 1948;38(4):404-11.
18. Heaton RK, Chelune GK, Taley JL, Kay GG, Kurtiss G. *Test de Clasificación de Tarjetas Wisconsin (2ª edición)*. Madrid: TEA Ediciones; 2001.
19. Axelrod BN, Goldman RS, Woodard JL. Interrater reliability in scoring the Wisconsin card sorting test. *Clin Neuropsychol*. 1992;6(2):143-55.
20. Sebastian A, Jung P, Krause-Utz A, Lieb K, Schmahl C, Tuscher O. Frontal dysfunctions of impulse control - a systematic review in borderline personality disorder and attention-deficit/hyperactivity disorder. *Front Hum Neurosci*. 2014;8:698.
21. Williams GE, Daros AR, Graves B, McMain SF, Links PS, Ruocco AC. Executive functions and social cognition in highly lethal self-injuring patients with borderline personality disorder. *Personal Disord*. 2015;6(2):107-16.

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### Between the sanitary complacency and the factitious disorder by proxy

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# Letter to the editor

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Dear Editor,

The Münchhausen Syndrome by Proxy (factitious disorder by proxy), constitutes a pathology that causes a great morbidity<sup>1</sup>. One of the parents, generally the mother, simulates or provokes the existence of symptoms in the child with the aim of seeking medical attention. Some characteristics exist that have to make us think about this problem (see table 1). This diagnosis should be taken into consideration in every child who has suffered multiple medical consultations, examinations and hospitalizations and/or that presents disjointed pathology, which is recurrent and has a bad response to the usual treatment. The need of an early diagnosis is very important to avoid severe consequences, and the carrying out of unnecessary explorations that occasionally might be invasive or involve a risk for the patient<sup>2</sup>.

## Clinical Case

We present the case of an 8 year old girl who repeatedly attends pediatric consultations and emergency services of the hospital with multiple and non specific somatic complaints, until during a readmission (due to digestive problems) it is suspected that there is the possibility of a psychological origin and the case was diverted to the Child and Adolescent Psychiatric Hospitalization Department to confirm the diagnosis.

The patient is a girl who resides with her mother. The parents have been separated since 2009, they have had a bad relationship since the patient presented with an autoimmune disease (economic problems, not fulfilling visiting rights, legal actions for the payment of child support...). The mother relates that *"the father does not take care of the child properly"*, and the father that *"she is always ill when she has to come with me"*.

Initially she was admitted to Pediatric Service due to abdominal pain and nausea, she was diagnosed with a digestive infection and she was readmitted 3 days after her discharge due to the same reason. In the patient's medical record it can be seen: 173 applications for analysis, 87 medical consultations, 37 radiological examinations, 6 hospitalizations, 31 consultations with the general practitioner (pediatrician) in 2014 and 15 consultations in 2015; without any findings of a physical cause that justifies the symptoms in most of the cases. In spite of being diverted to mental health consultations, the mother asks for voluntary discharge, hiding the fact to the child's pediatrician. During periods of hospitalization in the Pediatric Service it was noted that the mother objected to examinations of the child in her absence; while at the same time she forbade the child to speak about her father in the presence of medical professionals.

Personal background: Normal pregnancy, labour and psychomotor development. Up to date vaccination record for her age. Kawasaki disease at 3 years old, with cardiac complications (left coronary ectasia and minor mitral insufficiency in high-pitched phase) currently in remission. Ongoing supervision in Infant Cardiology. At 5 years of age she was examined in the Child Digestive Service for recurrent nausea and abdominal pain, with normal results (including

Table 1

Indicators of Münchhausen Syndrome by proxy<sup>3</sup>

IN THE CHILD	IN THE PERPETRATOR
<ul style="list-style-type: none"><li>· Symptoms which do not typically fall into a specific clinical diagnosis.</li><li>· Persistent and unexplained symptoms which lead to the elaboration of a disordered, complex and inconsistent diagnosis.</li><li>· Family background of unexplained child death or family members who allegedly have several serious illnesses.</li><li>· Complementary examinations that do not go inside with the child's state of health.</li><li>· Absence of similar cases.</li><li>· Inefficient or badly received treatments.</li></ul>	<ul style="list-style-type: none"><li>· Usually the mother.</li><li>· The signs and symptoms do not happen in her absence.</li><li>· The mother is less worried than the doctors.</li><li>· She refuses to leave the child alone in the hospital.</li><li>· She tries to establish closed relationships with doctors and nurses.</li><li>· She usually has health knowledge or a history of a sanitary profession usually unsuccessful.</li><li>· She presents with psychiatric or behavioural disorders.</li><li>· She has Münchhausen Syndrome.</li></ul>

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## Letter to the editor

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endoscopy). She has attended several specialists for diverse non specific symptomatology, and has different diagnoses of all kinds: transient synovitis of the hip, suprapubic pain, unspecified pains, dermatological illnesses of unspecified allergies; amongst others. Currently she is waiting upon an adenoidectomy and a stress test.

Family background: Only child. The parents have been separated since 2009 (coinciding with the child's diagnosis of Kawasaki disease). In custody of the mother. The mother refuses permission for the father to take her during the weekends that correspond to him, the exchanges take place in *Aprome*, however there is a significant level of non compliance. Due to this conflict and non compliance, the father refuses to pick her up, until she follows the judicial agreement; and they are waiting for a new evaluation by the Judicial Psychosocial Unit.

The mother is 43 years old with higher education, but is currently unemployed. She does not have any known medical or psychiatric history, however she admits to having a high level of anxiety in relation to her daughter's state of health. The father is 49 years old, he did an apprenticeship (professional training) but is currently unemployed. Orchiectomy due to Sertoli cells cancer. Positive HIV since he was 19 years old. Former drug addict (heroin and cocaine) from the age of 32 (he was placed in the *Proyecto Hombre* Association) and presently he is drug free. Imprisoned for 15 years, until he was 37 years old. Currently, from January 2015, he has to fulfil a barring order put in place by the child's mother and the family for a year, because he threatened them by phone (in relation to the unfulfilment of the visits). Both parents have an adequate family support structure.

### Complementary examinations and tests:

Physical examination: Without significant findings at the time of admission.

In the psychopathological examination the patient was conscious, orientated, approachable and cooperative. Neat and clean appearance. She relates that she does not know the reason why she is hospitalized. She admits that she *"was ill"* and that she *"has been ill for many years, since she was 3 years old"*, *"but when she was admitted to this hospital she got over it"*. She is fidgety and tends to stand up. Correct, spontaneous and natural language. Euthymic, no signs of anxiety. Biological rhythms preserved. There is no alterations in the psychotic sphere, nor autolytic ideation. Superior cognitive functions preserved.

During the admission process the mother asks for more examinations, specially of the digestive system and ophthalmologic. However it is considered that there is no clinical justification for doing more complementary examinations

due to the results of the previous studies; therefore she was only diverted to Dermatology for folliculitis in both gluteos and a papilloma on the sole of the right foot (treated with cryotherapy).

The psychological tests highlight: Children's Depression Inventory by Beck: 0 (no depression). Wechsler Intelligence Scale for Children (WISC-IV): Full Scale IQ: 134 (very superior). Verbal Comprehension: 137 (very superior). Perceptual Reasoning: 129 (superior). Working Memory: 130 (very superior). Processing Speed: 102 (average). Children's Personality Questionnaire CPQ-A: Average results. Projective test HTP: Appropriate ability of comprehension. Good self perception. It expresses a need of protection by environmental pressures. She seems to want to separate herself from a possible family conflict.

Due to these characteristics and the evolution of the symptoms, during the hospitalization the following diagnoses were carried out: Unspecified Factitious Disorder (Factitious Disorder by Proxy). High intellectual ability. Papilloma in the right foot treated with cryotherapy. Secondary problems related to the process of the parents' separation and other legal aspects.

The patient initially followed the treatment as it was prescribed during the hospitalization in the Pediatric Service: antiemetic (Ondansetron 4mg/8h) and gastric protector (Pantoprazol 40mg/24h and Omeprazol 20 mg/24h), which were progressively withdrawn, without presenting any digestive symptomatology again. At no time did she need psychopharmacological treatment. At the discharge the results of the evaluation were communicated to the referring doctors (Mental Health and Pediatric Services). The family (maternal grandparents) promised to take care of the psychological and behavioral control of the mother's anxiety (who should apply for an appointment in the Mental Health Service) and the child (appointments in the Child Mental Health Unit), and to avoid being overdemanding and other problems in the relationship with the father. It was agreed to maintain supervised visits in *Aprome*, until a new evaluation by the Judicial Psychosocial Unit can take place.

### Results

Initially the mother was opposed to the hospitalization, and she was very upset because she experienced it like an imposed situation under the threat of being reported to Child Services (Juvenile Prosecution offices). The family was very surprised by the number of complementary examinations, blaming the sanitary staff for them being carried out. On the other hand, the patient's mother admits that *"she is worried by her daughter's health, but has reasons for that, due to her medical history"*. With the hospitalization an en-

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## Letter to the editor

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vironmental separation was carried out, initially forbidding contact with the family, afterwards supervised visits were allowed by the medical staff of the Unit. They were appropriate at all times and without significant incidents.

During the hospitalization the girl stays completely asymptomatic, well adapted and integrated in the daily routines and activities. She does not complain about her physical symptoms; the patient herself admits that *"I got over it after being admitted"*, in spite of that the mother insists on *"during the visits she sees her daughter with eye irritations, or with digestive problems, but she does not dare to tell us"*. Interviews with the mother and the rest of the family were carried out and confirm the mother's excessive jealousy, her health obsession, as well as being overprotective. In addition, interviews with the father were carried out and he was cooperative. It was proposed that the mother needs to receive treatment from Mental Health Services to reduce her anxiety levels and modify her overprotective behaviour; as well as learning how to adequately manage any possible health problems that the child may have. It is agreed that the maternal grandparents will supervise these aspects.

### Conclusions

The use or instrumentalisation of the illness and its treatment in the problems of guardianship and custody of minor between parents who are separating are a special added complication. Münchausen Syndrome by Proxy being a type of children abuse with a high risk and difficult diagnosis that can be unperceived for months or even years.

Here is where the sanitary complacency dilemma emerges; in many cases, while having doubts, health professionals applied for numerous complementary tests facing the demanding requests of some patients or their families, these requests being reiterated and unnecessary in most of the cases. This is a major problem, not only economically speaking but also health wise, which needs to be controlled. The separation of the computers systems between Primary Care and the hospitals, in many cases complicates even more this supervision.

Every time we find ourselves with the suspicion of this disorder the need arises for an integral treatment plan, that incorporates in all steps the physical and psychological dimensions. Also the psychosocial context is key for the evaluation. The multidisciplinary approach is essential<sup>3</sup>. From the very first moment that the patient enters the health system (involving the doctors in the Emergency department, general practitioners and hospital doctors, through to the mental health professionals and the social and legal services); to elaborate a common strategy, follow ups and adequate intervention to guarantee the child's security at all time.

### REFERENCES

1. Goñi González T, Martínez Roda M J, de la Cerda Ojeda F. Síndrome de Münchausen por poderes. An Pediatr (Barc). 2008;68(6):609-11.
2. Yalındag-Öztürk N, Erkek N, Bayram Şirinoğlu M. Think again: First do not harm: A case of Münchausen Syndrome by Proxy. Pediatr Emerg Care. 2015 Oct;31(10):720-1.
3. de la Cerda Ojeda F, Goñi González T, Gómez de Terreros I. Münchausen Syndrome by proxy. Cuad Med Forense. 2006; 11(43-44):47-55.