

Alterações cognitivas e transtorno obsessivo-compulsivo em mulheres jovens no sul do Brasil: um estudo de coorte

Cognitive disorders and obsessive-compulsive disorder in young women in southern Brazil: a cohort study

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RESUMO

Introdução: O Transtorno Obsessivo-Compulsivo (TOC) tem sido associado ao comprometimento da função cognitiva. No entanto, a relação entre o TOC e o desempenho cognitivo de mulheres jovens no ciclo gravídico-puerperal ainda não está bem esclarecida. Este estudo teve como objetivo investigar a associação entre desempenho cognitivo e a presença de TOC em mulheres jovens no período perinatal e 30 meses após o parto. **Método:** Foi realizado um estudo de coorte com 435 mulheres, recrutadas em 47 unidades de atenção básica e 3 clínicas obstétricas públicas de uma cidade do sul do Brasil. O TOC foi identificado por meio da Entrevista Neuropsiquiátrica Internacional (MINI PLUS) e o desempenho cognitivo foi examinado por meio da Avaliação Cognitiva de Montreal (MoCA). Um modelo de regressão linear múltipla foi utilizado para verificar a relação entre o TOC e o desempenho cognitivo. **Resultados:** Nossos resultados mostraram que as mulheres diagnosticadas com TOC apresentaram pior desempenho cognitivo no escore total do MoCA ($\beta = -0,25$ $p < 0,05$) e no domínio da memória de curto prazo ($\beta = -0,27$ $p = 0,02$). **Conclusões:** O TOC esteve associado aos escores do MoCA aos 30 meses após o parto. A manutenção do TOC por períodos mais longos foi associada a maiores alterações de memória nessas mulheres. Alterações globais aparecem quando o TOC ocorre no momento presente, o que poderá trazer prejuízos na relação díade mãe-bebê.

PALAVRAS-CHAVE: Transtorno obsessivo-compulsivo, função cognitiva, perinatal, mulheres, memória

ABSTRACT

Introduction: Obsessive-Compulsive Disorder (OCD) has been associated with impaired cognitive function. However, the relationship between OCD and cognitive performance of young women in the pregnancy-puerperal cycle is still not well understood. This study aimed to investigate the association between cognitive performance and the presence of OCD in young women in the perinatal period and 30 months after delivery. **Method:** A cohort study was carried out with 435 women, recruited from 47 primary care units and 3 public obstetric clinics in a city in southern Brazil. OCD was identified through the International Neuropsychiatric Interview (MINI PLUS) and cognitive performance was examined through the Montreal Cognitive Assessment (MoCA).

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*A multiple linear regression model was used to determine the relationship between OCD and cognitive performance. **Results:** Our results showed that women diagnosed with OCD had worse cognitive performance in the total MoCA score ($\beta = -0.25$ $p < 0.05$) and in the short-term memory domain ($\beta = -0.27$ $p = 0.02$). **Conclusions:** OCD was associated with MoCA scores at 30 months after delivery. The maintenance of OCD for longer periods was associated with greater memory changes in these women. Global changes appear when OCD occurs in the present moment, which can harm the mother-infant dyad.*

Keywords: Obsessive-compulsive disorder, cognitive function, perinatal, women, memory

BACKGROUND

The perinatal period represents a time of increased vulnerability to the occurrence of psychiatric disorders, such as Obsessive-Compulsive Disorder (OCD) (1,2,3). OCD is the fourth most frequent diagnosis in the population but has not been thoroughly studied in women in the pregnancy-puerperal period or later (4). OCD is characterized particularly by obsessions (intrusive thoughts) and compulsions (repeated behaviors in the form of rituals) (5). Gestation and postpartum appear to play an important role in the course of the disorder, both triggering the onset of symptoms and exacerbating pre-existing OCD symptoms (3).

A recent meta-analysis estimated that 2.4% of women may present with OCD in the postpartum period (2). Although the prevalence is not high, the disorder can cause severe maternal suffering. Mothers often have obsessive thoughts about their child's well-being, such as fear of having an unhealthy baby at birth, fear of contamination, fear of the baby being taken away, and fear of the baby dying (6). Such obsessions are reflected in behavioral compulsions such as requests for security and constant inspection and cleaning (6).

In addition to emotional distress, researchers have found an association between OCD and cognitive function impairment (7,8). Cognition refers to several important mental processes in the execution of everyday activities, including attention, decision making, thinking, self-regulation, problem solving, language and memory (9). Dysfunction in these processes can lead an individual to have functional, social and/or emotional adjustment problems (9,10).

The association between OCD diagnosis and cognitive performance in the general population is well known in the literature. However, regarding OCD in the pregnancy-puerperal cycle, most studies provide information only on the prevalence and risk factors associated with the disorder and do not compare psychiatric morbidity with cognition performance, thus leaving a gap in the literature regarding the association between OCD and maternal cognition.

Maternal cognition plays an important role in the transmission and perpetuation of psychiatric disorders between generations (11). Recurrent negative thoughts, such as worries, interfere with specific aspects of cognitive functioning, especially attention and the ability to respond to the environment, which may impair the mothers' parental capacities and negatively affect mother-child interaction

and child development (11). In addition, cognitive research has clinical relevance for understanding the disorder; it is believed that cognition dysfunction may be related to the etiology and maintenance of OCD symptomatology (12).

With this background, this study aims to investigate the association between OCD and the cognitive performance of young women in the perinatal period and 30 months after childbirth.

METHOD

Study Design and Sample

A cohort study was conducted with a sample of pregnant teenagers (up to 19 years old) recruited between October 2009 and March 2011 in 47 primary healthcare units and 3 public obstetric clinics in a city in southern Brazil. The inclusion criteria were: to be pregnant, up to 19 years old and live in the urban area of the city. The exclusion criteria were: present some physical or cognitive disability that did not allow the understanding of the questionnaire.

These women were evaluated in the perinatal period: during pregnancy (between 20 and 22 weeks of gestation - evaluation 1) and postpartum (between 60 and 90 days after childbirth - evaluation 2); and at 30 months after childbirth (present moment). For this study, only women ($n = 435$) who were evaluated in the perinatal period and at 30 months after childbirth were included in assessing the presence of OCD.

All participants were asked to give consent to take part in the study, and they were assured of anonymity and confidentiality in the reporting of the results. Parents of women younger than 18 years old, were also informed about the study characteristics and they needed to sign the term of free and informed assent. This study was approved by the Ethics Committee on Research at the University under protocol number 2011/19. The participants who were diagnosed with OCD were referred to the psychiatric clinic of the University.

Measures

Obsessive-Compulsive Disorder

The Mini International Neuropsychiatric Interview (MINI PLUS), namely, the validated Portuguese version,

was used to assess OCD, according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) classification, and was applied by trained psychologists. MINI PLUS is a short-structured interview with adequate reliability ($\kappa > 0.50$) for the diagnosis of psychiatric disorders [13]. For analytical purposes, a dichotomous variable was used to indicate the diagnosis of OCD in the perinatal (gestation, postpartum or both), present moment (30 months after childbirth) and persistent periods. Women who had OCD in the perinatal and present periods were considered to have persistent OCD.

Cognitive Profile

Cognition was assessed by the Montreal Cognitive Assessment (MoCA), validated Portuguese Version, which aims to detect mild cognitive impairment [14]. MoCA presents psychometric characteristics such as Cronbach's alpha 0.75 for MCI temporal stability (ICC 0.75), ($p < 0.001$); sensitivity and specificity of 81% and 77% respectively, with a cut-off score of 25 points. ROC curve for MCI (0.82 ± 0.06) (14). The MoCA measures eight cognitive domains: executive functions (4 points); visuospatial abilities (4 points); language (5 points); attention, concentration, and working memory (6 points); temporal and spatial orientation (6 points); and short-term memory (5 points). The maximum score is 30 points, with higher scores indicating better cognitive performance (15). Based on the cognitive domains of the test and for analysis purposes, a continuous variable was created with the total score in MoCA, and another continuous variable was generated for each domain cognitive.

Sociodemographic Variables

A questionnaire administered by an interviewer was used to obtain the participant's age (up to 18 years/19 to 20 years/ above 21 years), marital status (living with a partner/living without a partner), education level (less than 4 years/between 4 and 7 years/between 8 and 10 years/above 11 years), occupation (work or school/no occupation) and socioeconomic status (A+B/C/D+E). We assessed socioeconomic status according to the Economic Classification for Brazil from the Brazilian Association of Companies and Research. This classification is based on the accumulated material assets of the family and the education of the head of the family. Subjects are categorized into five classes from A (highest socioeconomic status) to E (lowest socioeconomic status). For this study, the classes were grouped as follows: High classes (A+B), middle class (C) and lower classes (D+E) (16).

Statistical Analysis

Data were analyzed using the SPSS (Statistical Package for the Social Science) program, version 22.0. The descrip-

tive analysis was obtained by absolute and relative frequency and the bivariate analysis was performed through the t test and ANOVA, to verify differences in the means. One multiple linear regression model was generated, one for the total score and one for the score for each cognitive domain, as stated in MoCA. Variables associated with a significance level of $p < 0.2$ p -value were entered in the multiple linear regression analysis with a hierarchical multilevel approach, using the cognitive performance as outcome. In all tests, a significance level of 5% was used ($p < 0.05$). In the first level were included: age; marital status; education; occupation; and socioeconomic status. In the second level, the OCD were included.

RESULTS

A total of 435 young women were evaluated. The prevalence of OCD occurring at any time during the evaluation was 14.3%. Of these patients, 20.9% presented with OCD in the perinatal period, 61.5% at 30 months after childbirth and 17.4% in both evaluations (persistent). The sample distribution according to sociodemographic characteristics, OCD and total MoCA scores is presented in table 1. Regarding the sociodemographic variables, the mean age was 20.1 ($SD \pm 1.6$) years and 52.5% women reported living with a partner. Regarding education level, 37.6% had 4 to 7 years of education, and 62.5% of them were working. In addition, 70.2% were categorized as socioeconomic status C, according to the economic classification criteria for Brazil (table 1).

The bivariate analysis, revealed that education level ($p < 0.001$), occupation ($p = 0.012$) and socioeconomic status ($p < 0.001$) were positively associated with the total MoCA score. In addition, the lowest average total MoCA score was associated with perinatal OCD at 18.2 ($SD \pm 3.9$), present at 17.8 ($SD \pm 5.3$) and persistent 16.7 ($SD \pm 4.9$) ($p = 0.005$). Still in Table 1, we present the linearity p for OCD temporality. However, to better understand the differences in means between the categories, the ANOVA test was performed, where it was verified that the differences are expressed in the section that evaluates short-term memory and occur among those people who never had OCD manifestation and those who always presented OCD ($p = 0.034$). In addition, the overall MoCA assessment indicates that people with OCD at the time of assessment have worse overall cognitive performance when compared to people who have never had OCD.

In the multiple linear regression model, OCD was examined by controlling sociodemographic variables. The data are shown in table 2. The results revealed that OCD diagnosis was associated with worse performance in short-term memory ($\beta = -0.27$ [95%CI -0.49; -0.04]) and with low MoCA scores ($\beta = -0.25$ [95%CI -0.49; -0.02]). Regarding specific cognitive functions and sociodemographic variables, living without a partner was associated

Table 1: Univariate and bivariate analysis: the mean and standard deviation (SD) of the sociodemographic variables, obsessive-compulsive disorder, specific areas of cognition and total MoCA scores, Pelotas, state of Rio Grande do Sul, Brazil.

Variables	Executive function			Visuospatial ability			Language			Attention, concentration, working memory			Temporal and spatial orientation			Short-term memory			Total MoCA
	N (%)	Mean $\pm$ SD	p-value	Mean $\pm$ SD	p-value	Mean $\pm$ SD	Mean $\pm$ SD	p-value	Mean $\pm$ SD	p-value	Mean $\pm$ SD	Mean $\pm$ SD	p-value	Mean $\pm$ SD	p-value	Mean $\pm$ SD			
Age			0.024		0.161			0.759		0.425			0.918		0.686		0.119		
Up to 18 years old	65 (14.9)	0.9 $\pm$ 1.0a		1.7 $\pm$ 1.1		3.2 $\pm$ 1.1			4.1 $\pm$ 1.7			5.6 $\pm$ 0.7		2.9 $\pm$ 1.5		18.3 $\pm$ 3.9			
19 to 20 years old	173 (39.8)	1.1 $\pm$ 1.0		1.8 $\pm$ 1.1		3.2 $\pm$ 1.1			4.0 $\pm$ 1.6			5.6 $\pm$ 0.6		3.1 $\pm$ 1.5		18.8 $\pm$ 4.3			
21 years old and over	197 (45.3)	1.3 $\pm$ 1.1		2.0 $\pm$ 1.1		3.3 $\pm$ 1.0			4.2 $\pm$ 1.6			5.6 $\pm$ 0.9		3.1 $\pm$ 1.5		19.5 $\pm$ 4.4			
Marital status			0.128		0.220			0.018		0.786			0.963		0.705		0.129		
Living with partner	228 (52.5)	1.2 $\pm$ 1.1		1.9 $\pm$ 1.1		3.4 $\pm$ 1.1			4.2 $\pm$ 1.6			5.6 $\pm$ 0.8		3.1 $\pm$ 1.5		19.3 $\pm$ 4.3			
Living without a partner	206 (47.5)	1.1 $\pm$ 1.0		1.8 $\pm$ 1.1		3.1 $\pm$ 1.0		0.000	4.1 $\pm$ 1.6		0.000	5.6 $\pm$ 0.8		3.0 $\pm$ 1.5		18.7 $\pm$ 4.3			
Education			0.000		0.001			0.000		0.000			0.088		0.165		0.000		
Fewer than 4 years	31 (7.1)	0.7 $\pm$ 0.8b		1.3 $\pm$ 1.0b		2.5 $\pm$ 1.3b			2.8 $\pm$ 2.0b			5.4 $\pm$ 0.8		2.6 $\pm$ 1.7b		15.2 $\pm$ 4.6b			
Between 4 and 7 years	163 (37.6)	0.8 $\pm$ 0.9b		1.7 $\pm$ 1.1b		3.0 $\pm$ 1.0b			3.7 $\pm$ 1.6b			5.5 $\pm$ 0.8		3.0 $\pm$ 1.5		17.7 $\pm$ 4.0b			
Between 8 and 10 years	161 (37.1)	1.4 $\pm$ 1.0b		2.0 $\pm$ 1.1		3.3 $\pm$ 1.0b			4.5 $\pm$ 1.4			5.7 $\pm$ 0.6		3.1 $\pm$ 1.4		20.0 $\pm$ 3.7b			
11 years or more	79 (18.2)	1.7 $\pm$ 1.2		2.2 $\pm$ 1.1		3.9 $\pm$ 0.8			4.8 $\pm$ 1.2			5.6 $\pm$ 1.0		3.2 $\pm$ 1.5		21.4 $\pm$ 3.9			
Occupation			0.28		0.153			0.061		0.034			0.551		0.038		0.012		
Work	272 (62.5)	1.2 $\pm$ 1.0		2.0 $\pm$ 1.1		3.4 $\pm$ 1.0			4.3 $\pm$ 1.5			5.6 $\pm$ 0.8		3.2 $\pm$ 1.4		19.7 $\pm$ 4.1			
No Work	163 (37.5)	1.1 $\pm$ 1.1		1.8 $\pm$ 1.1		3.2 $\pm$ 1.1			4.0 $\pm$ 1.6			5.6 $\pm$ 0.8		2.9 $\pm$ 1.5		18.6 $\pm$ 4.3			
Socioeconomic status			0.006		0.002			0.004		0.000			0.065		0.038		0.000		
A+B	67 (16.1)	1.3 $\pm$ 1.0		2.1 $\pm$ 1.1		3.6 $\pm$ 1.0			4.8 $\pm$ 1.2			5.8 $\pm$ 0.6		3.0 $\pm$ 1.4		20.6 $\pm$ 3.6			
C	292 (70.2)	1.2 $\pm$ 1.1		1.9 $\pm$ 1.1		3.2 $\pm$ 1.1c			4.1 $\pm$ 1.6c			5.6 $\pm$ 0.9c		3.2 $\pm$ 1.5		19.2 $\pm$ 4.2c			
D+E	57 (13.7)	0.8 $\pm$ 0.9c		1.4 $\pm$ 1.0c		3.0 $\pm$ 1.2c			3.5 $\pm$ 1.6c			5.5 $\pm$ 0.7		2.6 $\pm$ 1.5		16.8 $\pm$ 4.1c			
OCD			0.169#		0.368#			0.148#		0.101#			0.276#		0.004#		0.005#		
No disorder	372 (85.7)	1.2 $\pm$ 1.0		1.9 $\pm$ 1.1		3.3 $\pm$ 1.1			4.2 $\pm$ 1.6			5.6 $\pm$ 0.8		3.1 $\pm$ 1.4		19.3 $\pm$ 4.1			
Perinatal	13 (3.0)	1.0 $\pm$ 1.0		2.0 $\pm$ 1.0		3.4 $\pm$ 1.0			3.9 $\pm$ 1.6			5.5 $\pm$ 0.7		2.4 $\pm$ 1.6		18.2 $\pm$ 3.9			
Present moment	38 (8.8)	1.1 $\pm$ 1.3		1.8 $\pm$ 0.1		3.0 $\pm$ 1.1			3.8 $\pm$ 1.7			5.5 $\pm$ 1.2		2.7 $\pm$ 1.7		17.8 $\pm$ 5.3			
Persistent	11 (2.5)	0.6 $\pm$ 1.0		1.6 $\pm$ 1.0		3.1 $\pm$ 1.1			3.6 $\pm$ 1.6			5.6 $\pm$ 0.5		2.2 $\pm$ 1.7d		16.7 $\pm$ 4.9d			
total	435 (100)	1.2 $\pm$ 1.1	-	1.9 $\pm$ 1.1	-	3.2 $\pm$ 1.1	-	-	4.1 $\pm$ 1.6	-	-	5.6 $\pm$ 0.8	-	3.1 $\pm$ 1.5	-	19.0 $\pm$ 4.3	-		

Data presented as the mean $\pm$ standard deviation; OCD=obsessive-compulsive disorder, #p of linearity, ap>0.05 for the DMS test in relation to category "Up to 18 years old", bp>0.05 for the DMS test in relation to category "11 years or more", cp>0.05 for the DMS test in relation to category "A B", dp>0.05 for the DMS test in relation to category "No disorder".

Table 2: Multiple linear regression of sociodemographic variables, obsessive-compulsive disorder, specific areas of cognition and total MoCA scores, Pelotas, state of Rio Grande do Sul, Brazil.

	Executive function			Visuospatial ability			Language			Attention, concentration, working memory			Temporal and spatial orientation			Short-term memory			Total MoCA		
	β	95% CI		β	95% CI		β	95% CI		β	95% CI		β	95% CI		β	95% CI		β	95% CI	
1st° Hierarchical Level																					
Age (21 years old and over)	0.11	-0.03; 0.25		0.08	-0.08; 0.23		-	-		-	-		-	-		0.09	-0.12; 0.30		0.09	-0.11; 0.30	
Marital status (Living without a partner)	-0.12	-0.31; 0.08		-	-		-0.26	-0.45; -0.06		-	-		-	-		-0.02	-0.31; 0.27		-0.01	-0.30; 0.28	
Education (11 years or more)	0.26	0.20; 0.37		0.12	0.03; 0.22		0.3	0.21; 0.38		0.42	0.29; 0.55		0.03	-0.04; 0.09		0.11	-0.02; 0.24		0.11	-0.02; 0.24	
Occupation (Work)	-	-		0.08	-0.14; 0.31		0.1	-0.10; 0.31		0.17	-0.13; 0.47		-	-		0.23	-0.07; 0.54		0.24	-0.07; 0.54	
Socioeconomic status (D+E)	-0.29	-0.27; 0.11		-0.23	-0.44; -0.03		-0.13	-0.31; 0.06		-0.38	-0.65; -0.10		-0.13	-0.27; 0.02		-0.05	-0.32; 0.22		-0.05	-0.32; 0.23	
2nd° Hierarchical Level																					
OCD (Persistente)	-	-		-	-		-	-		-	-		-	-		-0.27	-0.49; -0.04		-0.25	-0.49; -0.0	

 β = standardized coefficient; 95% CI = 95% confidence interval; OCD = obsessive-compulsive disorder.

with worse performance in language ($\beta = -0.26$ [95%CI -0.45; -0.06]). Higher education was associated with better performance in the domains of executive function ($\beta = 0.26$ [95%CI 0.20; 0.37]), visuospatial ability ($\beta = 0.12$ [95%CI 0.03; 0.22]), language ($\beta = 0.3$ [95%CI 0.21; 0.38]) and attention, concentration and working memory ($\beta = 0.42$ [95%CI 0.29; 0.55]). Low socioeconomic level was associated with worse cognitive performance in the areas of visuospatial ability ($\beta = -0.23$ [95%CI -0.44; -0.03]), attention, concentration and working memory ($\beta = -0.38$ [95%CI -0.65; -0.10]). The variables age and occupation did not association with cognitive performance.

DISCUSSION

Our study progresses in OCD research investigating the performance of different cognitive functions after 30 months of motherhood. The results revealed that low MoCA scores were associated with OCD diagnosis. Cohort studies evaluating perinatal OCD and cognitive performance are practically non-existent. However, our results can be corroborated by cross-sectional studies with a sample of subjects between 18 and 60 years of age, showing that OCD is related to lower cognitive performance in neuropsychological tests when compared to the performance of healthy subjects (17,18).

Regarding specific cognitive functions, our results reveal that OCD was associated with worse performance in short-term memory. This finding is consistent with another study that evaluated the cognition of OCD patients with the MoCA test and reported low short-term memory performance scores (17). A meta-analysis also indicated that patients with OCD have significant impairment and memory appears to be one of the areas most affected by the disorder (7). However, the literature is based on the hypothesis that memory-related deficiencies are secondary due to a bias in information coding and the difficulty of implementing organizational strategies (12,19).

On the other hand, there appears to be a consensus about the role of memory in the etiology of the compulsion to check and verify whether the rituals were performed (8,12). Memory failures in performing certain tasks can generate obsessive thoughts about whether or not the task was performed, leading to compulsive checking behavior (12). In the case of young mothers, poor memory performance can increase insecurity and doubts about whether baby care has actually occurred, and may exacerbate the compulsive behavior of checking the activity itself and affecting the baby's well-being.

When the model was adjusted for sociodemographic variables, they were not significantly associated with the total MoCA scores. In the bivariate analysis, the educational variable was associated with worse performance in almost all the domains of MoCA. When the analysis was adjusted for age, socioeconomic status and marital status, however, the result

lost strength. The educational level remained associated to some domains, but not to the total MoCA. Our result is echoed in a meta-analysis study that points to bidirectionality regarding the demographic variables (age, gender and education) as potential confounders (7). That study suggests that cognitive deficits in OCD may not be associated with demographic variables. However, it was verified that the performance of certain specific functions was influenced by the level of schooling, marital status and socioeconomic level.

In relation to the executive function, our results are corroborated by a study that demonstrates that the educational level is positively related to the performance of the executive function. It was evaluated by different tests: letter screening (TCS), phonemic verbal fluency (SAF) and verbal fluency semantics (SVF) [20]. Other studies also highlight the influence of education on MoCA outcomes and state that cognitive performance tends to improve as the educational level increases (21,22). However, this association can be bidirectional: on the one hand, higher educational levels may increase cognitive performance, but, on the other hand, people with cognitive dysfunction may, over time, have greater difficulty in achieving higher levels of education.

Another finding concerns the relationship between marital status and cognitive performance. In our study, not having a partner was associated with poorer performance in the language domain. For this variable, there is also no consensus in the literature: one study reported that married people are less likely to have cognitive impairment (23), while another study found no relation to cognitive performance (21).

Regarding the relationship between socioeconomic level and cognitive performance, our outcomes indicate that the low socioeconomic level was associated with worse cognitive performance in the areas of visuospatial ability, attention, concentration and working memory. Low-income people may have more difficulty accessing education and improving their mental health status. What is important is that the presence of OCD, regardless of socioeconomic status, schooling and marital status, is associated with cognitive alterations, which will probably interfere with the mother-child relationship, thus impacting the health of the dyad.

Besides being a behaviorally manifest change, OCD is presented in complex ways, including various aspects of cognition, such as short-term memory, which causes distresses in the mother-child bond. Therefore, as it is associated with cognitive alterations, OCD in this period has a high potential for negative effects on this dyad, and therefore, we must give special attention to this phenomenon. Neuropsychology research has explored the various relationships established between neuronal connections and human behavior. OCD is characterized by loss of inhibitory control and inability to regulate behaviors and thoughts, thus altering executive functions, which may arise through deficits associated with lack of initiative, planning and problem solving, which all have repercussions in this disorder (4). When considering a mental disorder such as OCD, one should importance not to the phenomenon itself but

to the complexity of the phenomenon and its consequences: for the individual, the mother and for her child.

Limitations

Our study should be interpreted in light of its limitations. First, the period of assessment was not the usual period, gestation or postpartum, which precludes comparison with other studies with evaluations during the perinatal period. Besides the perinatal period, we evaluated young mothers 30 months after delivery. In the early years of life the development and strengthening of the affective bond between mother and child take place, so that maternal mental health seems to have a highly significant impact on building a healthy relationship. Second, we did not compare cognitive performance with the symptomatology of OCD. The third, the instrument used, MINI PLUS, is an instrument with good sensitivity and reliability to diagnose clinical cases, but it cannot capture the full spectrum of OCD symptoms. Fourth, we identified women who fully met the criteria for psychiatric disorders, reflecting the clinical population needing treatment. The nevertheless limitation is that additional assessments were not carried out at around childbirth and therefore it is not possible to state whether the changes in symptoms were associated with pregnancy, with the postpartum period or both.

CONCLUSION

Our findings demonstrate that OCD was associated with the MoCA scores at 30 months postpartum. However, when OCD is maintained for longer periods, it has been associated with worse performance of short-term memory function but it was not associated with all specific areas. The worst overall performance manifests when OCD is at the present moment. This indicates that the time and permanence of OCD has repercussion in areas other than cognition, with an emphasis on memory. Cognitive alterations in mothers with OCD lead to changes in the mother-child relationship and, therefore, its identification and early intervention are important to minimize such repercussions.

DECLARATIONS

Declaration of interest:

The authors declare that there is no conflict of interest.

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Ethics approval and consent to participate

This study was approved by the Ethics Committee on Research at the University under protocol number 2011/19, in accordance with the Declaration of Helsinki. Informed consent was obtained for both the participants and their parents, who were assured of the confidentiality of the data. Young mothers could refuse to participate at any time during the research. The participants who were diagnosed with psychiatric disorders were referred to the psychiatric clinic of the University.

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