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Early maladaptive schemas activated in patients with obsessive compulsive disorder: A cross-sectional study

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Abstract

Aim. The aim of the present article is to investigate the activation patterns of early maladaptive schemas (EMSs) in patients with obsessive-compulsive disorder (OCD). *Method.* During the time between 1 January 2006 and 1 April 2006, 45 consecutive patients from an outpatient facility of a general hospital and 45 age- and gender-matched healthy control subjects from the hospital staff were included in the study. They were administered the Structured Clinical Interview for Diagnosis of DSM-IV Mental Disorders (SCID-1), the Structured Clinical Interview for DSM-III-R Personality Disorders (SCID-2), the Young Schema Questionnaire–Short Form (YSQ-SF), the Young Parenting Inventory (YPI) and the Yale–Brown Obsessive Compulsive Scale (Y-BOCS). The results were assessed using GraphPad Prisma V.3 statistical program. *Results.* The YSQ total score of the OCD group was significantly higher than the control group ($t = 3.62$, $P < 0.0001$). The average scores of the patients with OCD on certain schemas were significantly higher than the average scores of the control group, although the others did not make any difference between the OCD and control groups. *Conclusion.* The study demonstrates that, in the patients with OCD, most of the early maladaptive schemas including social isolation, vulnerability and pessimism, are prominently activated.

Key Words: *Cognitive therapy, obsessive-compulsive disorder, maladaptive schema, schema therapy*

Introduction

Obsessive-compulsive disorder (OCD) is characterized by recurrent, intrusive and distressing thoughts or images (obsessions) that are typically ego-dystonic, going against the value system of the individual. Compulsions are completed in an attempt to alleviate the distress generated by the obsessional thoughts. OCD presents a special challenge in terms of prognosis and treatment outcomes. Current treatment approaches, whether psychological or pharmacological, seldom show better than a 50% improvement rate when dropout and relapse are taken into account [1]. Despite numerous theoretical models of OCD from evolutionary psychology [2] to cognitive theory [3] and to psychoanalysis [4], there is so far no explanatory model that will guide us to treat patients with OCD [5]. Accordingly, cognitive approaches have evolved to address dysfunctional assumptions that appear to give rise to obsessive-compulsive symptoms. Over recent years there have been proposals that people with OCD symptoms tend to overestimate the likelihood and severity of aversive events, to believe the necessity to completely control intrusive thoughts and not to tolerate mistakes [6,7].

Beck's cognitive specificity hypothesis, which proposes that different types of psychopathology arise from different types of dysfunctional beliefs are among the most promising model that will guide us to treat patients with OCD [7–9]. Beck argues that an individual's affect and behavior are determined by his/her cognitive schemas developed by him/her due to previous experiences and directed by his/her perception of the world [3]. The concept of schema has played a role in cognitive theories of psychopathology from the beginning, although there has been a paucity of literature considering how specific psychopathologies are related to schemas.

According to the schema theory developed by Young [10–13], schemas are cognitive structures that help the individual to organize the information about self and environment. The most basic concept in the schema approach is an Early Maladaptive Schema (EMS). Young defines an EMS as "broad, pervasive theme regarding oneself and one's relationship with others, developed during childhood and elaborated

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Table I. Socio-demographic characteristics of the patients and the control subjects.

	Patients ($n=45$)		Controls ($n=45$)		
Age	31.98±10.58		32.82±9.62		$t=0.04$ $P=0.663$
	n	%	*n*	%	
Sex					
Male	14	31.1	15	33.3	χ^2=0.06
Female	31	68.9	30	66.7	$P=0.821$
Education					
5 years	9	20.0	14	31.1	
8 years	8	17.8	8	17.8	$\chi^2=1.89$
11 years	18	40.0	13	28.9	$P=0.595$
15 years	10	22.2	10	22.2	
Occupation					
Retired	3	6.82	1	2.2	
Housewife	15	34.09	13	28.9	
Worker	4	9.09	11	24.4	$\chi^2=10.62$
Officer	3	6.82	9	20.0	$P=0.06$
Student	10	22.73	8	17.8	
Other	9	20.45	3	6.82	
Marital status					
Single	18	40.0	15	33.3	$\chi^2=0.5$
Widowed	3	6.82	4	8.9	$P=0.781$
Married	24	53.3	26	57.8	
Substance use					
Yes	0	0	3	6.82	$\chi^2=3.1$
No	45	100.0	42	93.3	$P=0.078$
Smoking					
Yes	11	24.4	24	53.3	$\chi^2=7.9$
No	34	75.6	21	46.7	

upon throughout one's lifetime, and dysfunctional to a significant degree" [13]. In other words, they are his/her core beliefs related to the self and the world and are built on the past experiences. These schemas are said both to operate as templates for the processing of and to become reinforced by later experience [14–17]. Young identified 18 specific schemas, such as abandonment, mistrust, emotional deprivation, etc. [13]. In this model, the 18 schemas are grouped into five broad categories of unmet emotional needs that they call "schema domains", such as disconnection, impaired autonomy, etc. [13,18]. Schemas are circular and self-perpetuating and, when challenged, the individual distorts information to maintain their validity [19]. Being persistent cognitive structures, schemas sometimes can have working and positive characters to cope with life, whereas they sometimes can be dysfunctional and negative in nature [20]. Schemas may remain dormant until they are activated by situations relevant to that particular schema. These become activated by life events and psychopathologies, although they are inactive, or latent, in healthy situations [15,21]. It is hypothesized that specific schemas are activated each time new and relevant social information is encountered [22]. According to this hypothesis, every psychopathology has specific schema activation [20]. This specificity hypothesis can be conceptually extended to become a general specificity hypothesis, incorporating the possibility that cognitive distortions may also be disorder specific [23]. It is not yet obvious whether this specificity can be applied to OCD, although cognitive assessment of resistant OCD cases demonstrated that they have a long-standing constellation of entrenched dysfunctional core beliefs about self and others [24].

While much of the recent clinical literature has focused on the core beliefs in the development of personality disorders [15,25–27], this model has clear links to work with other clinical groups. There is a well-established literature demonstrating the role of this form of cognitive representation in depression, anxiety and eating disorders [28–31]. In a

Table II. Comparising the patient group's individual EMS scores with their education levels.

OCD group	5 years ($n=9$)	8 years ($n=8$)	11 years ($n=18$)	15 years ($n=10$)	*F*	*P*
Emotional deprivation	2.87±1.22	2.83±1.46	2.83±1,36	2,46±1.3	0.21	0.888
Abandonment	3±1.3	2.98±0.75	2.87±0.83	2.82±0.87	0.08	0.97
Mistrust/Abuse	2.6±0.94	3.65±0.75	3.33±0.99	2.88±1	2.26	0.095
Social isolation	2.09±0.95	3.33±1.52	3.16±0.92	2.3±1.17	3.14	**0.035**
Defectiveness	1.44±0.49	2.6±1.31	2.48±1.06	1.9±0.81	3.05	**0.039**
Failure	2.13±0.65	3.35±1.24	2.72±1.18	2.14±0.97	2.62	0.064
Dependence	1.98±0.87	2.58±1.35	2.54±0.85	1.86±0.67	1.77	0.168
Vulnerability	2.89±0.95	3.43±0.84	3.31±1.23	2.86±0.84	0.78	0.513
Enmeshment	2.93±1.01	3.28±0.68	3.52±1.35	2.66±0.98	1.44	0.245
Subjugation	2.11±0.58	2.95±1.17	3±1.08	2.3±0.8	2.45	0.077
Self-sacrifice	3.69±1.01	3.45±0.91	3.63±0.65	3.12±0.83	1.05	0.379
Emotional inhibition	2.2±1.06	2.78±0.84	3±0.91	2.26±1.07	2.02	0.126
Unrelenting standards	2.49±0.79	2.95±1.46	3.5±1.04	2.76±1.14	2.03	0.125
Entitlement	2.78±0.47	3.53±0.86	3.7±1.14	2.94±0.67	2.89	**0.047**
Insufficient self-control	3.27±0.66	3.65±0.59	3.81±0.85	3.3±0.48	1.78	0.166
Approval seeking	3.2±1.03	3.93±0.89	4.07±0.96	3.76±0.87	1.75	0.172
Pessimism	2.8±0.93	3.63±0.86	4.13±0.89	3.1±1.03	5.14	**0.004**
Punitiveness	2.33±1.04	3.15±0.68	3.27±0.84	2.54±1.2	2.63	0.063
YSQ Total	2.57±0.57	3.22±0.53	3.27±0.56	2.66±0.67	4.28	**0.01**

Table III. Comparing the control group's individual EMS scores with their education levels.

Control group	5 years ($n=9$)	8 years ($n=8$)	11 years ($n=18$)	15 years ($n=10$)	F	P
Emotional deprivation	2.3±0.92	2.28±0.99	1.86±0.69	1.7±0.78	1.40	0.256
Abandonment	2.83±1.02	2.33±0.9	2.69±0.91	2.42±0.82	0.69	0.565
Mistrust/Abuse	2.86±0.98	2.5±1.07	2.63±0.94	2.32±0.94	0.63	0.6
Social isolation	2.23±0.86	2.18±0.84	1.82±0.43	1.62±0.61	1.89	0.146
Defectiveness	1.99±0.61	2.1±0.9	1.74±0.74	1.64±0.72	0.85	0.474
Failure	2.31±1.02	2.13±0.58	1.74±0.85	1.84±0.62	1.29	0.289
Dependence	2.36±0.95	1.85±0.56	1.74±0.56	1.74±0.66	2.16	0.107
Vulnerability	2.37±0.99	2.28±0.93	2.42±0.81	2.1±1.02	0.25	0.863
Enmeshment	2.37±0.76	2.93±0.9	2.83±0.81	2.38±0.98	1.26	0.301
Subjugation	2±0.69	2.2±1.12	2.23±0.76	2±0.61	0.29	0.829
Self-sacrifice	3.3±1.25	3.4±0.94	3.65±0.63	3.26±0.81	0.41	0.747
Emotional inhibition	2.79±0.87	3±0.86	2.29±0.7	2.18±0.91	2.24	0.098
Unrelenting standards	2.36±0.76	2.8±0.81	2.48±0.85	2.48±0.95	0.48	0.697
Entitlement	2.89±0.65	2.68±0.97	3.14±0.69	3.04±0.54	0.81	0.495
Insufficient self-control	3.53±0.85	2.78±0.65	3.18±0.68	3.52±0.56	2.37	0.084
Approval seeking	3.27±0,89	3.33±0.99	3.46±0.87	3.38±0.66	0.12	0.95
Pessimism	2.91±0.87	2.9±1.23	2.66±0.66	2.58±1.15	0.34	0.795
Punitiveness	2.53±0.61	2.85±0.82	3.05±0.89	2.48±0.89	1.37	0.265
YSQ Total	2.62±0.57	2.58±0.67	2.53±0.51	2.37±0.55	0.40	0.753

recent study, Richardson confirmed the hypothesis that EMSs will have been present in a sample of sexually abusive adolescents [32].

Although the schema approach was originally reported over 15 years ago, few randomized controlled trials about it for psychiatric conditions have so far been conducted [31]. Thus, the present study is aimed to investigate the schema activation patterns in patients with OCD, and thus to make a preliminary contribution to the understanding and treatment of them.

Method

The patients self-referred to the Psychiatric Outpatient Clinic of Haydarpaşa Numune Research and Training Hospital, and diagnosed with OCD according to the criteria of the Diagnostic and Statistical Manual of Mental Disorders, 4th edition [33], were included in the present study during the period between 1 January 2006 and 1 April 2006. They were diagnosed with any anxiety disorder in the clinic and sent to the Anxiety Disorder Unit for detailed assessment. The presence or absence of any Axis-I and -II psychiatric disorder(s) was evaluated using the Structured Clinical Interview for Diagnosis of DSM-IV Mental Disorders (SCID-1) [34,35] and the Structured Clinical Interview for DSM-III-R Personality Disorders (SCID-2) [36–38]. Of these, a total of 45 patients (31 women and 14 men) were selected on the basis of the inclusion and exclusion criteria. The inclusion criteria for the study were designated as: (1) being diagnosed with OCD; (2) being at an age of between 18 and 65; (3) being literate so that could read and respond to the scales administered; and (4) gave an informed consent. In addition, those who were diagnosed with any Axis-I disorder other than OCD, those who had any mental retardation or personality disorder(s), those with substance use disorder, and/or severe neurological or medical disease(s) were excluded. Among those who were interviewed and diagnosed with obsessive-compulsive disorder, 21 were excluded from the study because they were outside the age limits of the study and they were illiterate. The study has been reviewed by the local Ethics Committee and has been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

Hospital staff aged between 18 and 65 ($n = 45$; 30 women and 15 men) were selected as the control group. Both the patients and the healthy controls were given information about the study and they all signed an informed consent. All of the patients and the healthy volunteers were interviewed in a face-to-face manner and the questionnaires and scales used in the study were assessed through the mutual agreement with each of the participants. Both groups

Table IV. Demonstrates the correlations of significant results among each other using Tukey multiple comparison test.

Tukey multiple comparison test	SI	Defectiveness	Entitlement	Pessimism	YSQ
5 years/8 years	0.045	0.035	0.333	0.274	0.126
5 years/11 years	0.048	0.046	0.043	0.006	0.033
5 years/15 years	0.976	0.739	0.979	0.895	0.984
8 years/11 years	0.984	0.991	0.968	0.574	0.997
8 years/15 years	0.222	0.437	0.525	0.634	0.198
11 years/15 years	0.219	0.443	0.158	0.035	0.05

Table V. The duration of illness and the average Y-BOCS scores of the patients.

Duration of illness	5.2±4.89
Y-BOCS Obsession	12.47±3.24
Y-BOCS Compulsion	11.09±4.28
Y-BOCS Total	23.56±6.88

were given the Young Schema Questionnaire – Short Form (YSQ), the Young Parenting Inventory – Mother and Father (YPI-M and YPI-F), and a socio-demographic information form prepared by the researchers to determine the personal and demographic characteristics of the participants. In addition, the patient group was given the Yale-Brown Obsessive Compulsive Scale (Y-BOCS) [39,40].

The original version of Schema Questionnaire was developed by Young to measure early maladaptive schemas. It is a 205-item self-report measure designed to assess most of the 18 schemas. The Schema Questionnaire – Short Form (YSQ-SF) was also designed [41,42] to measure 18 maladaptive schemas and it is a briefer (75-item) instrument. Relative to the original 205-item version [43], the 75-item version of Young Schema Questionnaire [44] clearly has practical advantages for the clinician or researcher who wishes to investigate the core beliefs of individuals with psychological disorders [29]. Each item reflects a thought, feeling, or behavior that corresponds to a particular schema. Participants are instructed to rate each item on a Likert scale ranging from 1 to 6, where 1 is "completely untrue of me" and 6 "describes me perfectly". Items are clustered by schema; the severity of a given schema is assessed by identifying how many items were given high ratings (5 or 6) by the patient within a schema cluster.

The factor analysis of this short form which consisted of 18 schemas was done by Waller et al. [29]. These 18 subscales demonstrated good internal consistency. It was also found that YSQ-SF has high internal consistency and that it may be used with confidence in place of the more unwieldy 205-item version [46–48].

The Young Parenting Inventory (YPI) was also administered to identify and confirm the childhood origins of the identified schemas. The Sheffield et al. study [49] described the psychometric validation of the Young Parenting Inventory (YPI), and tested specific hypotheses regarding the link between a subject's experience of their parent's behaviors and the development of schema-level core beliefs. The YPI is a measure of perceived parenting experiences, hypothesized to represent the origins of negative core beliefs. The YPI is a 72-item self-report measure. Each item assesses a particular parental behavior corresponding to the hypothesized childhood origins of that schema. Patients who complete the measure

Table VI. The correlations between the scores on the Y-BOCS obsession and compulsion subscales and its total scores and the individual EMS scores.

	Y-BOCS obs	Y-BOCS comp	Y-BOCS total
Emotional deprivation			
r	0.006	0.276	0.174
P	0.968	0.067	0.252
Abandonment			
r	0.156	0.209	0.205
P	0.312	0.173	0.183
Mistrust/Abuse			
r	−0.111	−0.01	−0.058
P	0.468	0.95	0.704
Social isolation			
r	0.287	0.106	0.201
P	0.056	0.487	0.184
Defectiveness			
r	0.114	0.16	0.153
P	0.455	0.293	0.314
Failure			
r	0.105	0.043	0.076
P	0.494	0.779	0.62
Dependence			
r	0.439	0.484	0.507
P	**0.003**	**0.001**	**0.0001**
Vulnerability			
r	0.042	−0.004	0.017
P	0.787	0.979	0.911
Enmeshment			
r	0.146	0.156	0.166
P	0.343	0.313	0.28
Subjugation			
r	0.223	0.157	0.203
P	0.141	0.303	0.182
Self-sacrifice			
r	−0.211	−0.171	−0.206
P	0.164	0.26	0.174
Emotional inhibition			
r	0.122	−0.012	0.05
P	0.423	0.935	0.745
Unrelenting standards			
r	0.002	−0.021	−0.012
P	0.992	0.89	0.935
Entitlement			
r	−0.116	−0.038	−0.078
P	0.448	0.804	0.609
Insufficient self–control			
r	0.072	0.199	0.158
P	0.638	0.189	0.3
Approval seeking			
r	0.009	0.159	0.103
P	0.955	0.296	0.5
Pessimism			
r	0.161	0.065	0.116
P	0.291	0.672	0.447
Punitiveness			
r	−0.065	−0.011	−0.037
P	0.672	0.945	0.809
YSQ Total			
r	0.138	0.164	0.168
P	0.37	0.287	0.276

Table VII. The YSQ scores of the obsessive-compulsive patients and the control subjects.

	Patients	Controls	*t*	*P*
Emotional deprivation	2.76±1.3	2.04±0.85	3.11	0.003
Abandonment	2.9±0.9	2.61±0.92	1.51	0.134
Defectiveness	3.14±0.98	2.61±0.96	2.60	0.01
Social Isolation	2.78±1.18	1.96±0.72	3.95	0.0001
Mistrust/Abuse	2.16±1.04	1.86±0.73	1.62	0.108
Failure	2.59±1.12	2.01±0.83	2.78	0.007
Enmeshment	2.28±0.95	1.95±0.75	1.84	0.069
Vulnerability	3.15±1.03	2.31±0.91	4.09	0.0001
Dependence	3.17±1.13	2.6±0.86	2.67	0.009
Subjugation	2.66±1.01	2.1±0.76	2.95	0.004
Self-sacrifice	3.5±0.82	3.41±0.94	0.48	0.632
Emotional inhibition	2.64±1	2.55±0.86	0.45	0.653
Unrelenting standards	3.04±1.14	2.5±0.82	2.56	0.012
Entitlement	3.32±0.96	2.96±0.7	2.04	0.045
Insufficient self-control	3.56±0.72	3.29±0.74	1.73	0.088
Approval seeking	3.8±0.97	3.36±0.83	2.31	0.023
Pessimism	3.55±1.05	2.76±0.94	3.73	0.0001
Punitiveness	2.91±1	2.72±0.81	0.91	0.368
YSQ Total	3±0.65	2.53±0.56	3.62	0.0001

are instructed to rate each item for both their mother and father. Items are rated on a Likert scale ranging from 1 to 6, where 1 is "completely untrue" and 6 describes mother/father "perfectly". The first schema on the YPI, Emotional Deprivation, is scored backwards: that is, low scores of 1 or 2 indicate high ratings. All of the other schemas are scored normally: that is, high scores of "5" or "6" indicate high ratings [49].

Results were analyzed using the GraphPad Prisma V.3 statistical program. In addition to descriptive statistics, such as mean and standard deviation, independent *t*-test was used to compare dual groups, chi-squared test to compare the qualitative data, and Pearson correlation test to determine the interactions of the variables with each other. Tukey multiple comparison test was used for one-way ANOVA comparisons. Significance was described as $P<0.05$.

Table VIII. The YPI-M Scores of the obsessive and the control groups.

	Patients	Controls	*t*	*P*
Emotional deprivation	4.4±1	3.72±1.58	2.46	0.016
Abandonment	1.41±0.54	1.27±0.64	1.11	0.27
Defectiveness	2.36±1.45	1.75±0.83	2.43	0.018
Abuse	1.23±0.52	1.31±0.63	−0.64	0.522
Enmeshment	3.86±1.17	3.68±0.93	0.03	0.98
Failure	1.84±1.03	1.42±0.63	2.32	0.023
Pessimism	3.04±1.15	3.19±1.01	−0.68	0.501
Vulnerability	3.05±1.03	2.64±0.92	2.0	0.048
Dependence	2.22±1.08	1.83±0.71	2.02	0.046
Subjugation	2.87±1.53	2.49±1.27	1.26	0.213
Self-sacrifice	2.78±0.86	2.88±0.84	−0.53	0.6
Emotional inhibition	3.36±1.07	3.15±0.89	1.01	0.317
Unrelenting standards	3.14±1.56	2.53±0.93	2.27	0.027
Entitlement	2.8±0.76	2.78±0.93	0.12	0.902
Approval seeking	3.49±1.37	3.52±1.11	−0.13	0.899
Pessimism	3.04±1.15	3.19±1.01	−0.68	0.501
Punitiveness	3.11±1.45	2.53±1.11	2.12	0.037
YPI-M Total	2.69±0.56	2.57±0.39	1.24	0.218

Table IX. YPI-F scores of the obsessive and the control groups.

	Patients	Controls	*t*	*P*
Emotional deprivation	4.38±1.35	3.66±0.95	2.92	0.004
Abandonment	1.24±0.57	1.18±0.41	0.53	0.597
Defectiveness	1.99±1.07	1.52±0.59	2.56	0.012
Abuse	1.17±0.41	1.19±0.4	−0.26	0.793
Enmeshment	2.97±1.1	3.22±0.99	−1.11	0.271
Failure	1.48±0.65	1.39±0.54	0.70	0.484
Pessimism	2.79±1.33	2.55±0.92	1.01	0.314
Vulnerability	4.22±1.16	3.96±0.87	1.21	0.232
Dependence	2.08±1.02	1.82±0.71	1.41	0.161
Subjugation	2.38±1.25	2.22±1.15	0.64	0.526
Self-sacrifice	3.02±0.94	3.05±0.75	−0.16	0.877
Emotional inhibition	3.01±0.95	3.07±0.88	−0.30	0.766
Unrelenting standards	2.77±1.21	3±1.01	−0.96	0.339
Entitlement	2.72±0.8	2.91±1.01	−0.99	0.327
Approval seeking	3.43±1.28	3.47±1.09	−0.16	0.877
Punitiveness	2.59±1.15	2.23±1.02	1.55	0.124
YPI-M Total	2.61±0.47	2.54±0.38	0.70	0.489

Results

A total of 45 patients with OCD and 45 age- (31.89±10.58 vs. 32.82±9.62) and sex- (31 vs. 30 female and 14 vs. 15 male) matched controls were included in the present study. Table I demonstrates that there was no significant difference between the patient and control socio-demographic characteristics, such as education and occupation. (The details of the relationship between education of controls and patients and the early maladaptive schemas are shown in Tables II–IV.) As shown in Table V, the Y-BOCS scores of the patients (total average: 23.56± 6.88) demonstrated that their disease was clinically active during the study. Table VI indicates how early maladaptive schemas are correlated with obsession and compulsion subscales of the Y-BOCS and with its total score.

Table VII summarizes the total YSQ-SF scores and the scores of individual schemas of the patients and controls by comparison. It was found that the YSQ total score of the OCD group was significantly higher than the control group ($t=3.62$, $P<0.0001$). When considering the schemas individually, it appeared that the YSQ average scores for the schemas of social isolation, vulnerability, and pessimism were significantly higher ($P<0.0001$) in the patients than in the controls. Though to a lesser degree, the significantly higher scores were also given by the patients to the additional eight schemas ($P<0.05$) compared to the control subjects. These schemas are emotional deprivation, defectiveness, failure, incompetence, subjugation, unrelenting standards, entitlement, and approval-seeking. In the remaining seven schemas (abandonment, enmeshment, abuse, emotional inhibition, punitiveness, self-sacrifice and insufficient self-control schemas), the average scores

Table X. The relationship between YPI-M scores and individual EMS scores.

YPI-M	ED	Aban	Pes	SI	Def	Fail	Dep	Vuln	Enm	Sub	SS	EI	US	Ent	ISc	AS	Ent	Pun	YSQ
ED																			
r	−0.418	−0.195	−0.211	−0.369	−0.378	−0.26	−0.37	−0.31	0.008	−0.181	0.011	−0.203	−0.374	−0.338	−0.279	−0.365	−0.174	−0.065	−0.38
P	**0.0001**	0.066	**0.045**	**0.0001**	**0.0001**	**0.013**	**0.0001**	**0.003**	0.943	0.088	0.921	0.055	**0.0001**	**0.001**	**0.008**	**0.0001**	0.101	0.54	**0.0001**
Aban																			
r	0.357	0.223	0.133	0.302	0.24	0.178	0.198	0.265	−0.065	0.131	0.038	0.191	0.169	0.116	0.167	0.139	0.165	0.056	0.265
P	**0.001**	**0.036**	0.211	**0.004**	**0.023**	0.093	0.062	**0.011**	0.544	0.218	0.725	0.072	0.111	0.274	0.116	0.19	0.12	0.603	**0.012**
M/A																			
r	0.32	0.213	0.137	0.211	0.279	0.175	0.304	0.097	−0.081	0.039	0.104	0.127	0.223	0.127	0.069	−0.008	0.057	0.132	0.216
P	**0.002**	**0.045**	0.199	**0.046**	**0.008**	0.099	**0.004**	0.364	0.45	0.718	0.33	0.233	**0.034**	0.234	0.517	0.941	0.596	0.216	**0.042**
Vuln																			
r	−0.093	0.09	0.187	−0.075	0.013	0.019	−0.158	0.047	0.058	−0.052	−0.009	0.03	−0.128	0.005	0.034	−0.007	0.068	0.104	0.009
P	0.383	0.4	0.077	0.484	0.901	0.859	0.136	0.663	0.586	0.629	0.93	0.779	0.23	0.963	0.754	0.946	0.526	0.331	0.932
ISc																			
r	0.275	0.29	0.23	0.493	0.402	0.36	0.402	0.213	0.024	0.314	0.022	0.134	0.352	0.23	0.348	0.227	0.256	0.189	0.4
P	**0.009**	**0.006**	**0.029**	**0.0001**	**0.0001**	**0.0001**	**0.0001**	**0.044**	0.824	**0.003**	0.839	0.209	**0.001**	**0.029**	**0.001**	**0.031**	**0.015**	0.074	**0.0001**
Def																			
r	0.374	0.116	0.143	0.33	0.308	0.425	0.275	0.192	0.043	0.269	0.203	0.203	0.391	0.123	0.239	0.2	0.094	0.017	0.338
P	**0.0001**	0.28	0.179	**0.001**	**0.003**	**0.0001**	**0.009**	0.071	0.688	**0.01**	0.055	0.056	**0.0001**	0.247	**0.023**	0.058	0.38	0.871	**0.001**
Fail																			
r	0.463	0.19	0.219	0.428	0.45	0.396	0.406	0.269	0.067	0.298	0.116	0.349	0.442	0.254	0.325	0.197	0.285	0.199	0.45
P	**0.0001**	0.074	**0.038**	**0.0001**	**0.0001**	**0.0001**	**0.0001**	**0.01**	0.534	**0.004**	0.277	**0.001**	**0.0001**	**0.016**	**0.002**	0.062	**0.007**	0.061	**0.0001**
Sub																			
r	0.388	0.233	0.221	0.297	0.308	0.295	0.238	0.217	0.082	0.126	0.161	0.191	0.366	0.26	0.253	0.21	0.131	0.056	0.341
P	**0.0001**	**0.028**	**0.036**	**0.005**	**0.003**	**0.005**	**0.024**	**0.04**	0.443	0.236	0.129	0.071	**0.0001**	**0.013**	**0.016**	**0.047**	0.218	0.598	**0.001**
SS																			
r	0.226	0.159	0.178	0.083	0.117	0.094	0.109	0.059	0.112	−0.019	0.304	0.154	0.052	0.13	0.16	−0.006	0.064	0.195	0.179
P	**0.033**	0.137	0.093	0.435	0.272	0.379	0.306	0.578	0.295	0.862	**0.004**	0.147	0.625	0.221	0.131	0.957	0.546	0.066	0.093
US																			
r	0.142	0.154	0.103	0.01	0.176	0.114	0.036	−0.018	0.132	0.148	0.238	0.185	0.274	0.227	0.275	0.168	0.017	0.125	0.202
P	0.184	0.151	0.334	0.923	0.099	0.289	0.736	0.864	0.222	0.166	0.025	0.083	**0.009**	**0.033**	**0.009**	0.115	0.873	0.245	0.059
Ent																			
r	0.243	0.265	0.224	0.252	0.235	0.086	0.096	0.078	0.092	0.082	0.181	0.066	0.225	0.283	0.194	0.176	0.157	0.261	0.265
P	**0.021**	**0.012**	**0.034**	**0.016**	**0.026**	0.421	0.367	0.464	0.393	0.444	0.087	0.539	**0.033**	**0.007**	0.067	0.097	0.14	**0.013**	**0.012**
Enm																			
r	−0.057	0.084	−0.007	−0.041	0.011	0.015	−0.013	−0.138	0.266	0.065	0.156	0.031	−0.094	−0.044	0.093	0.029	0.043	0.271	0.052
P	0.592	0.432	0.946	0.701	0.915	0.891	0.903	0.195	**0.012**	0.544	0.141	0.769	0.377	0.681	0.384	0.785	0.684	**0.01**	0.627
Pes																			
r	0.343	0.179	0.192	0.259	0.372	0.308	0.196	0.1	0.059	0.231	0.149	0.32	0.33	0.164	0.309	0.121	0.108	0.134	0.323
P	**0.001**	0.094	0.07	**0.014**	**0.0001**	**0.003**	0.064	0.349	0.584	**0.029**	0.162	**0.002**	**0.002**	0.121	**0.003**	0.257	0.313	0.208	**0.002**

Table X (*Continued*)

YPI-M	ED	Aban	Pes	SI	Def	Fail	Dep	Vuln	Enm	Sub	SS	EI	US	Ent	ISc	AS	Ent	Pun	YSQ
EI																			
r	0.269	0.178	0.2	0.252	0.389	0.072	0.105	0.069	0.077	0.188	0.065	0.234	0.23	0.352	0.343	0.254	0.173	0.304	0.309
P	**0.01**	0.094	0.058	**0.017**	**0.0001**	0.499	0.326	0.519	0.476	0.076	0.542	**0.027**	**0.029**	**0.001**	**0.001**	**0.016**	0.103	**0.004**	**0.003**
Pun																			
r	0.291	0.272	0.208	0.249	0.293	0.225	0.157	0.093	0.086	0.225	0.065	0.092	0.372	0.258	0.257	0.278	0.031	0.082	0.298
P	**0.005**	**0.01**	**0.049**	**0.018**	**0.005**	**0.033**	0.139	0.384	0.424	**0.033**	0.544	0.389	**0.0001**	**0.014**	**0.015**	**0.008**	0.769	0.444	**0.005**
AS																			
r	0.131	0.117	0.288	0.002	0.145	−0.012	−0.005	0.081	0.179	0.042	0.003	0.107	0.205	0.314	0.179	0.367	0.069	0.284	0.204
P	0.22	0.278	**0.006**	0.982	0.175	0.913	0.96	0.451	0.096	0.693	0.975	0.317	0.054	**0.003**	0.094	**0.0001**	0.521	**0.007**	0.057
YPI–M																			
r	0.426	0.329	0.319	0.357	0.442	0.339	0.272	0.155	0.154	0.263	0.239	0.281	0.414	0.332	0.406	0.267	0.192	0.29	0.459
P	**0.0001**	**0.002**	**0.002**	**0.001**	**0.0001**	**0.001**	**0.01**	0.147	0.153	**0.013**	**0.024**	**0.008**	**0.0001**	**0.001**	**0.0001**	**0.011**	0.072	**0.006**	**0.0001**

did not make any difference between the OCD and the control groups ($P > 0.05$) (Table VII).

The total scores of both YPI-M and YPI-F inventories did fail to reveal any statistically significant difference between the OCD group and the control group ($t = 1.24$; $P < 0.218$ and $t = 0.70$; $P > 0.489$, respectively). When assessing individual items separately as shown in Table VIII, however, the patients gave statistically higher scores to the individual schemas such as emotional deprivation, vulnerability, failure, unrelenting standards, defectiveness, incompetence, and punitiveness on the YPI-M. The YPI-F scores of the patients for the individual schemas of emotional deprivation and defectiveness were also significantly higher than the controls ($P < 0.05$) (Table IX). There was no statistically significant difference between the OCD group and the control group except to the above-mentioned scores on both inventories ($P > 0.05$). The correlations between the patients' and controls' individual YPI-M and YPI-F scores and the YSQ scores are shown in detail in Tables X and XI. Both the YPI-M and the YPI-F scores in terms of individual EMSs, as well as total scores, appear to have significant correlations with the YSQ scores (Table XII).

Finally, there was no correlation between the severity of the disease (which is determined by Y-BOCS scores) and the YSQ total scores (Table XIII).

Discussion

The schema-focused approach to understanding and treating psychological disturbance is a recent development in psychiatry. Therefore, it is not surprising that the formal assessment of schema content is in its infancy [26,45,50]. This approach suggests that EMSs become activated during personality disorders, as do some anxious and depressive conditions such as OCD, although they are inactive, or latent, in healthy situations [51–54]. According to this view, every psychopathology has specific schema activation [12]. In one of the few studies carried out in this area, however, Delattre et al. [31] found that each EMS was shown to have higher levels of activation in all patients with anxiety disorder than in healthy persons, and that therefore schema activation is not accepted as specific to any anxiety disorder.

Our study is one of the first comparative studies carried out on this subject. In it, we found a general trend of increased activation in most, but not all, of the EMSs in the OCD patients than in the healthy control subjects. The patients gave significantly higher scores to the schemas of social isolation, vulnerability, and pessimism, and relatively but significantly higher scores to the schemas of emotional deprivation, defectiveness, failure, incompetence, subjugation, unrelenting standards,

Table XI. The relationship between YPI–F scores and individual EMS scores.

YPI–F	ED	Aban	Pes	SI	Def	Fail	Dep	Vuln	Enm	Sub	SS	EI	US	Ent	ISc	AS	M/A	Pun	YSQ
ED																			
r	−0.581	−0.14	−0.215	−0.368	−0.389	−0.341	−0.372	−0.151	0.105	−0.111	−0.004	−0.21	−0.273	−0.165	−0.147	−0.213	−0.11	−0.026	−0.323
P	**0.0001**	0.191	0.042	**0.0001**	**0.0001**	**0.001**	**0.0001**	0.154	0.327	0.296	0.967	**0.047**	**0.009**	0.12	0.167	**0.044**	0.3	0.806	**0.002**
Aban																			
r	0.401	0.214	0.106	0.344	0.186	0.192	0.19	0.146	−0.029	0.073	0.061	0.185	0.169	−0.031	0.101	0.094	0.109	0.011	0.233
P	**0.0001**	**0.044**	0.322	0.001	0.08	0.07	0.073	0.169	0.788	0.496	0.57	0.081	0.111	0.769	0.343	0.377	0.307	0.918	**0.028**
M/A																			
r	0.265	0.143	0.153	0.279	0.213	0.219	0.356	0.089	−0.061	0.025	0.039	0.08	0.201	0.044	0.132	0.034	0.043	0.018	0.203
P	**0.012**	0.183	0.151	**0.008**	**0.044**	**0.039**	**0.001**	0.406	0.573	0.816	0.718	0.453	0.057	0.681	0.215	0.749	0.69	0.868	0.056
Vuln																			
r	−0.045	0.174	0.282	−0.093	−0.029	0.02	−0.057	0.175	0.332	0.159	0.1	0.098	0.034	0.144	0.197	0.217	0.235	0.3	0.184
P	0.676	0.102	**0.007**	0.383	0.783	0.854	0.591	0.099	**0.001**	0.135	0.346	0.357	0.752	0.177	0.063	**0.04**	**0.026**	**0.004**	0.085
ISc																			
r	0.17	0.194	0.198	0.331	0.261	0.396	0.185	0.161	0.026	0.364	0.102	0.167	0.273	−0.006	0.191	0.183	0.164	0.06	0.29
P	0.109	0.069	0.061	**0.001**	**0.013**	**0.0001**	0.081	0.128	0.812	**0.0001**	0.341	0.115	**0.009**	0.953	0.071	0.084	0.122	0.572	**0.006**
Def																			
r	0.293	0.11	0.119	0.403	0.262	0.396	0.309	0.158	0.106	0.295	0.204	0.15	0.365	0.147	0.34	0.166	0.141	0.002	0.348
P	**0.005**	0.307	0.263	**0.0001**	**0.013**	**0.0001**	**0.003**	0.136	0.324	**0.005**	0.054	0.159	**0.0001**	0.166	**0.001**	0.117	0.185	0.985	**0.001**
Fail																			
r	0.407	0.105	0.198	0.448	0.386	0.431	0.489	0.129	0.046	0.229	0.013	0.274	0.374	0.128	0.207	0.119	0.174	0.104	0.36
P	**0.0001**	0.329	0.061	**0.0001**	**0.0001**	**0.0001**	**0.0001**	0.225	0.668	**0.03**	0.901	**0.009**	**0.0001**	0.229	0.051	0.266	0.1	0.33	**0.001**
Sub																			
r	0.321	0.113	0.17	0.214	0.181	0.19	0.237	0.006	0.093	0.078	0.091	0.03	0.235	0.196	0.19	0.101	0.016	0.02	0.21
P	**0.002**	0.29	0.11	**0.043**	0.087	0.073	**0.025**	0.954	0.386	0.467	0.395	0.777	**0.026**	0.065	0.072	0.343	0.881	0.85	**0.048**
SS																			
r	0.076	0.176	0.25	0.041	−0.067	0.06	0.068	0.16	0.251	0.0001	0.378	0.115	0.051	0.084	0.116	0.003	0.155	0.184	0.174
P	0.479	0.098	**0.017**	0.705	0.529	0.574	0.523	0.131	**0.018**	0.996	**0.0001**	0.28	0.632	0.431	0.274	0.977	0.145	0.082	0.103
US																			
r	−0.078	0.091	0.007	0.032	−0.058	−0.067	0.04	−0.047	0.137	0.019	0.117	−.044	0.18	0.232	0.228	0.092	0.037	0.033	0.071
P	0.467	0.396	0.947	0.767	0.587	0.529	0.707	0.661	0.199	0.858	0.274	0.68	0.09	**0.028**	**0.031**	0.388	0.727	0.759	0.506
Ent																			
r	0.12	0.229	0.3	0.203	0.086	0.099	0.214	0.101	0.144	0.068	0.194	0.045	0.185	0.16	0.159	0.222	0.188	0.205	0.242
P	0.262	**0.031**	**0.004**	0.055	0.42	0.355	**0.043**	0.342	0.179	0.525	0.067	0.672	0.081	0.133	0.135	**0.035**	0.076	0.052	**0.022**
Enm																			
r	−0.258	0.173	0.074	0.071	0.007	−0.084	0.072	0.046	0.257	0.124	0.073	−0.058	−0.006	0.137	0.189	0.182	0.141	0.269	0.11
P	**0.014**	0.104	0.486	0.508	0.946	0.43	0.502	0.664	0.015	0.244	0.494	0.587	0.952	0.197	0.075	0.086	0.185	**0.01**	0.303
Pes																			
r	0.155	0.221	0.144	0.342	0.178	0.109	0.239	0.101	0.103	0.131	0.095	0.07	0.213	0.246	0.364	0.111	0.152	0.108	0.257
P	0.145	**0.037**	0.176	**0.001**	0.094	0.306	**0.024**	0.343	0.336	0.219	0.373	0.512	**0.044**	**0.02**	**0.0001**	0.299	0.153	0.309	**0.015**

Table XI (*Continued*)

YPI–F	ED	Aban	Pes	SI	Def	Fail	Dep	Vuln	Enm	Sub	SS	EI	US	Ent	ISc	AS	M/A	Pun	YSQ
EI																			
r	0.076	0.079	0.164	0.274	0.318	−0.039	0.109	0.068	−0.072	0.025	0.027	0.092	0.198	0.305	0.272	0.176	0,088	0,127	0.185
P	0.476	0.461	0.122	**0.009**	**0.002**	0.718	0.306	0.527	0.502	0.818	0.799	0.389	0.061	**0.003**	**0.01**	0.097	0,411	0,232	0.083
Pun																			
r	0.212	0.201	0.154	0.173	0.122	0.092	0.126	0.009	0.01	0.009	−0.021	−0.031	0.306	0.274	0.193	0.202	0,051	0,077	0.18
P	**0.045**	0.059	0.146	0.102	0.252	0.388	0.235	0.93	0.928	0.935	0.841	0.771	**0.003**	**0.009**	0.068	0.056	0,636	0,472	0.091
AS																			
r	−0.003	0.123	0.183	−0.041	−0.018	−0.185	0.043	0.026	0.133	0.004	0.016	−0.107	0.144	0.381	0.186	0.409	−0,011	0,16	0.111
P	0.98	0.252	0.084	0.704	0.864	0.081	0.689	0.807	0.213	0.973	0.883	0.314	0.176	**0.0001**	0.08	**0.0001**	0,916	0,132	0.303
YPI-F																			
r	0.145	0.298	0.302	0.32	0.193	0.177	0.254	0.146	0.237	0.222	0.2	0.088	0.347	0.318	0.4	0.301	0,208	0,228	0.367
P	0.172	**0.005**	**0.004**	**0.002**	0.069	0.095	**0.016**	0.169	**0.026**	**0.036**	0.059	0.41	**0.001**	**0.002**	**0.0001**	**0.004**	**0,05**	**0,031**	**0.0001**

entitlement, and approval seeking. While these findings demonstrate that the EMSs are prominently activated in patients with OCD, the meaning of these findings in terms of both clinical picture and theory of OCD is not yet clear. Also, whereas some cross-sectional investigations indicate that OCD-related dysfunctional beliefs are positively correlated with OCD severity [7], we failed to demonstrate a correlation between Y-BOS scores and YSQ total scores. Some investigators concluded that such dysfunctional cognitions might be a consequence of disease episodes, correlates, or indeed part of that disease, rather than onset vulnerability factors [55], but most research design does not address whether the dysfunctional beliefs area cause or a consequence of OCD symptoms [7]. In other words, it is difficult to determine whether the activation of EMS is a cause or a consequence of OCD. This means that the etiological significance of higher activation levels shown in these schemas is questionable; due to their nonspecific nature, such schemas are likely to play a role in contributing to distress in general. Therefore, the meaning of our study findings for the etiology, symptomatology, or prognosis of OCD, are not yet clear and we could not say if they are related to the state or trait characteristics of OCD patients.

Although we did not find any significant difference between the patients and the healthy control subjects regarding the total scores of the YPIs, a conclusion can be inferred by the results on both YPI-F and YPI-M, i.e., on how the parents are experienced by the patients. Therefore, it is reasonable to consider these preliminary findings as demonstrating that there are significantly higher scores in the subscales of emotional deprivation and defectiveness on YPI-F, and of emotional deprivation, defectiveness, dependence/incompetence, failure, vulnerability, and punitiveness on the YPI-M. Obviously, much more research is needed to precisely conclude on what and how parent attitudes influence the behavior of OCD patients before assessing the predictive ability of these measures.

Given the suggested heterogeneity of the clinical picture, etiology and prognosis of OCD [56], higher scores on a number of schemas may, in fact, be

Table XII. The relationship between the YSQ total scores with the YPI-M and YPI-F total scores.

	YSQ total	YPI-M total	YPI-F total
YSQ total			
r		0.459	0.367
P		**0.0001**	**0.0001**
YPI-M total			
r	0.459		0.64
P	**0.0001**		**0.0001**
YPI-F total			
r	0.367	0.64	
P	**0.0001**	**0.0001**	

Table XIII. Relation between the patients' Y-BOCS obsession, compulsion, and total scores and their YSQ, YPI-M, and YPI-F total scores.

	YSQ total	YPI-M total	YPI-F total
Y-BOCS obsession			
r	0.138	−0.107	0.141
P	0.37	0.489	0.357
Y-BOCS compulsion			
r	0.164	0.08	0.183
P	0.287	0.605	0.229
Y-BOCS total			
r	0.168	−0.001	0.18
P	0.276	0.996	0.237

because they represent different subgroups of the disease. That is, models demonstrating the emphasis of some schemas might apply only to a subgroup of cases of OCD [4,54]. The cross-sectional design of this study also makes us unable to test the causal direction postulated in this explanation. Future longitudinal research is needed to highlight this causal relationship.

Another issue is the relation of the schema activation to mood changes: the question of what exactly the YSQ-SF is measuring – stable, underlying constructs or mood-activated negative cognitions. The results of the Stopa and Waters study [45] are equivocal: they suggest that across some schemas the YSQ-SF is measuring stable constructs, but that other schemas are susceptible to influence by both negative and positive mood states. It is not clear whether this occurs through the activation of a latent schema, or whether mood simply activates more negative automatic thoughts. Miranda and Persons [55] demonstrated that the mood induction produced changes in mood and in dysfunctional attitudes, although the increase in dysfunctional attitudes following the negative mood induction (i.e., depressive mood induction) was not large enough to be statistically significant. Some authors also argue that cognitive schemas may not, as proposed, be latent structures, but instead products of mood-state changes [14,55]. For this reason, we excluded any Axis-I disorder for controlling mood-state artifacts on cognitive schemas in our study, but in this case, we may have caused significant sample bias. In order to make precise conclusions about schemas as either state-dependent artifacts of the disorder or enduring vulnerability in the form of core beliefs, further studies should aim at extending beyond the period of the disease.

In addition to these points, the implications of the study for the treatment of OCD patients should be addressed. Sookman et al. [56] reported a multidimensional approach for OCD that focuses on the schemas to improve the efficacy of patients who were resistant to current cognitive behavioral treatments. Schema therapy proposes that EMSs are at the core of psychopathology and distress. Therapeutic change in schema therapy is based on the modification of EMSs and associated coping behaviors. The present study and future research in this area may help to identify early maladaptive schemas through the use of the YSQ and YPI, in addition to the information obtained during interviews. This insight may help us link past and present experiences via these schemas and provide some guiding principles for the assessment of treatment goals and outcomes.

Finally, self-report measures are clearly limited with respect to concepts such as schemas, which may elude conscious awareness. Moreover, Young's conceptualization of schemas remains to be validated across cultures, and one might certainly expect schemas to be culture specific. Again, to apply the schema approach to the patients in all cultures needs further studies, which should be carried out in individuals from different cultures.

Despite the limitations mentioned of our study, it is reasonable to argue that it has the advantage of being one of the first studies carried out in patients with a specific psychiatric disorder since the emergence of the schema approach. However, it would be concluded that activation of certain schemas are related to obsessive compulsive disorder only if these findings can be replicated in future research, which should be carried out on a larger sample of patients with OCD, particularly during and after measuring mood changes.

Key points

- Few randomized controlled trials about the schema approach to various psychiatric conditions have so far been conducted
- Our study is one of the first comparative studies carried out on this subject
- We found a general trend of increased activation in most, but not all, of the Early Maladaptive Schemas in the Obsessive Compulsive Disorder patients than in the healthy control subjects
- The meaning of the findings in terms of both clinical picture and theory of OCD is not yet clear and further studies are needed to highlight the question of whether the schemas activated are specific to OCD
- However, the insight obtained from the study may help us link past and present experiences via these schemas and provide some guiding principles for the assessment of treatment goals and outcomes

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