

# Investigation of the Relationship Between Early Maladaptive Schemes in OCD Subtypes

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## Abstract

There are few studies in the literature examining the role of early maladaptive schemas (EMS) in OCD. In addition, to the best of our knowledge, there is no study examining OCD in terms of schema domains and the scope of schema theory. Our study, in which the relationship between OCD subtype and EMS was examined, was planned to contribute to the literature in conceptualizing OCD according to the schema model. 60 OCD patients and 111 healthy volunteers were included in the study and sociodemographic form, Young Schema Scale Short Form-3 and Obsessive Compulsive Inventory-Revised scales were applied. Considering the hypothesis that each psychopathology exhibits unique schema activations, increasing number of prospective studies examining OCD and its subtypes and early maladaptive schemas and schema domains will contribute to the literature in this field. Although the common denominator of the studies conducted is that certain EMSs are active in OCD, our study stands out in terms of examining subtypes and schema domain correlations.

**Keywords:** obsessive-compulsive disorder, schemas, schema therapy

## Öz

### OKB Alt Tiplerinde Erken Maladaptif Şemalar Arasındaki İlişkinin İncelenmesi

OKB'de erken dönem uyum bozucu şemaların (EMS) rolünü inceleyen çalışmalar literatürde az sayıda mevcuttur. Ek olarak OKB'yi belirti alttıplerini ele alarak, şema teorisi kapsamında inceleyen çalışma da bilginiz dâhilinde mevcut değildir. Çalışmamız OKB'nin alttıpleri ele alınarak şema modeline göre kavramsallaştırılması açısından literatüre katkı sunması için planlanmış ve OKB alt boyutları ile EMS ilişkisi incelenmiştir. Araştırmaya 60 OKB hastası ve 111 sağlıklı gönüllü alınmıştır ve sosyodemografik form, Young Şema Ölçeği Kısa Form-3 ve Obsesif Kompulsif Envanter-Revize ölçekleri uygulanmıştır. Her psikopatolojinin kendine özgü şema aktivasyonlarına sahip olması hipotezi de göz önüne alındığında, OKB ve alttıpleri ve erken dönem uyum bozucu şemalar ve şema alanlarını inceleyen çalışmalarının sayısının artması literatüre bu alanda katkı sağlayacaktır. Genel olarak yapılan çalışmaların ortak paydasının OKB'de belirli EMS'lerin aktif olduğu olsa da alttıpleri ile şema alanları korelasyonu bakılması açısından çalışmamız öne çıkmaktadır.

**Anahtar Kelimeler:** obsesif-kompulsif bozukluk, şemalar, şema terapi

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## INTRODUCTION

Obsessive compulsive disorder (OCD) is characterized by repetitive, disturbing and unwanted thoughts, impulses or images (obsessions) and repetitive behaviors (compulsions) that are believed to be attempts to reduce anxiety (APA, 2013). The lifetime prevalence of OCD, which can display a chronic course and early onset, is 2.5%

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(Ruscio, Stein, Chiu, & Kessler, 2010). Currently, there is no gold standard method for determining OCD symptom subtypes, and the criteria remain unclear. However, OCD dimensions and subtypes can be determined with the help of some measurement tools developed in experimental studies, although they vary among themselves in the literature (Williams, Mugno, Franklin, & Faber, 2013; Alemany-Navarro et al., 2020). It has been suggested that there may be differences in these symptom dimensions in terms of comorbidity, genetic transmission and response to treatment (Mataix-Cols, Rosario-Campos, & Leckman, 2005), and that there may be different emotions and cognitive structures for each dimension, which may affect the treatment approach (Ekici, Ugurlu, Yigman, Safak, & Özdel, 2022).

Beck's cognitive specificity hypothesis, which proposes that different types of psychopathology result from different types of dysfunctional beliefs, has been one of the most promising models to guide us in treating individuals with OCD. Beck hypothesized that negative and stressful experiences in childhood may lead to reinforcement of maladaptive core beliefs, which are called cognitive schemas that determine emotions and behaviors in individuals (Beck 1974; Atalay H, Atalay F, Karahan, & Caliskan, 2008). These schemas are assumed to be fixed patterns of dysfunctional cognitive processing that might be reactivated under stressful situations (Beck, Rush, Shaw, & Emery, 1996).

It has been suggested that symptom severity in OCD is related to many cognitive structures such as obsessive beliefs (Ekici, Gül, Dinçer, Özdel, & Cöngöloğlu, 2022; Smith, Wetterneck, Hart, Short, & Björgvinsson, 2012). Schema theory, as an expanded version of Beck's cognitive schemas, was developed by Young et al. who defined schemas as cognitive structures that help an individual organize information regarding himself and the environment (Young, Klosko, & Weishaar, 2003). When these schemas are maladaptive, they are called early maladaptive schemas (EMS). Early maladaptive schemas is defined as pervasive and persistent themes about oneself and relationships with others that develop in childhood and operate throughout life. Young suggested that schemas are broad patterns consisting of memories, emotions, cognitions, and bodily sensations related to one's relationships with oneself and others (Young et al., 2003). Young identified five basic schema domains and 18 schemas, namely Impaired Autonomy,

Disconnection, Overvigilance, Other-directedness, and Impaired Limits (Young, & Klosko, 1993).

Considering erroneous evaluations in OCD, early maladaptive schemas are believed to play a role in defining OCD. It is thought that early maladaptive schemas, particularly grouped under the impaired autonomy domain, play an important role in OCD (Young et al., 2003). The relationship between OCD and early maladaptive schemas is of importance in terms of both etiology and treatment. Schemas are also associated with traumatic childhood events, which may be an obstacle to the establishment of a safe therapeutic relationship and may lead to poor treatment outcomes (Akbaş, 2021). Despite the effectiveness of CBT with ERP (exposure and response prevention), studies show that 17–33% of OCD patients do not respond adequately to ERP, whereas 5–29% discontinue or refuse treatment (Thiel et al., 2014), which indicates the need for additional interventions in the treatment of OCD. Increasing knowledge about the underlying EMS in individuals with OCD, especially in cases that do not respond to treatment, may guide us in developing treatment modalities. Although the literature shows us the role of EMS in depression, anxiety disorder and eating disorders (Renner, Lobbstaël, Peeters, Arntz, & Huibers, 2012; Pinto-Gouveia, Castilho, Galhardo, & Cunha, 2006), further information is needed with respect to EMS in OCD. Although whether the dominant maladaptive schemas in OCD are the cause or the result of OCD has not been clarified, OCD patients can be made aware of these active schemas with schema therapy (Atalay et al., 2008; Young et al., 2003; Akbaş, 2021). There are few studies in the literature examining the role of early maladaptive schemas in OCD. In addition, to the best of our knowledge, there is no study examining OCD in terms of schema domains and the scope of schema theory. Our study, in which and the relationship between OCD subtype and EMS was examined, was planned to contribute to the literature in conceptualizing OCD according to the schema model.

## METHOD

### Participants and Procedure

The present paper is a quantitative, cross-sectional study in which scales were applied to evaluate the relationship between OCD subtypes and early maladaptive schemas. Inclusion criteria for the patient group were to have a

diagnosis of OCD according to DSM-5, to be aged between 18–65, to be literate and to volunteer to participate in the study whereas exclusion criteria were to have a neurological disease or mental retardation, to have bipolar disorder (mania, depression or mixed episode or hypomania), substance use disorder, psychotic disorders, cognitive mental disorders such as dementia and delirium according to DSM-5. For the control group, inclusion criteria were to be aged between 18–65, to be literate, to volunteer to participate in the study, and not receive any psychiatric treatment. Our study was approved by the ethics committee with the decision number 12024861–83 on 13.12.2021.

### Universe and Sample

A total of 60 OCD patients and 111 healthy volunteers who applied to the psychiatry outpatient clinics of Ufuk University Medical Faculty Hospital within a period of 3 months were included in the study. The participants were priorly informed in detail and their informed consent were obtained. The Structured Clinical Interview (SCID 5-CV) for DSM-5 was performed during diagnostic clinical interviews with the patients for the clinical diagnosis of OCD.

### Scales

#### **Sociodemographic data Form**

It questions the characteristics of participants such as age, gender and educational status.

**Young Schema Questionnaire – Short Form 3 (YSQ-SF3):** In the present study, the 3rd version of the short form of the Young Schema Questionnaire (YSQ-SF3) was used to evaluate early maladaptive schemas. The scale consists of 90 items including 18 schemas (Young & Brown, 2005). Recent studies point to 4 schema domains: “disconnection and rejection, impaired autonomy and performance, excessive responsibility and standards ve impaired limits” (Bach & Bernstein, 2019). The validity and reliability study of the scale for the Turkish population was conducted by Soygüt, Karaosmanoğlu, and Çakır (2009).

#### **Obsessive Compulsive Inventory – Revised (OCI-R):**

The scale, developed by Foa et al., 2002, determines obsessive compulsive severity and symptom distributions. It is a widely used self-assessment tool developed to overcome

the problems in existing measurement tools. The validity and reliability study for the Turkish population was conducted by Aydin et al. in 2014. Moderate to high levels of internal consistency and test validity were obtained for the overall scale and its subscales (Aydin, Boysan, Kalafat, Selvi, Beşiroğlu, & Kagan, 2014). Many studies examining the psychometric properties of the OCI-R have consistently demonstrated that the OCI-R has a 6-factor structure and the reliability and convergent validity of the OCI-R are excellent (Foa et al., 2002). The scale consists of six subscale as washing, controlling, ordering, obsessing, hoarding and mental neutralization (Yorulmaz, Inozu, Clark, & Radomsky, 2015).

### Data Analysis

Conformity to normal distribution was evaluated with the Kolmogorov-Smirnov test. Independent samples t-test was used to examine the difference between groups. Inter-scale correlation was evaluated with the Pearson correlation test. Predictive factors on OCI-R scores were evaluated with stepwise regression analysis. A p value of <0.05 was considered significant in all measurements.

## RESULTS

Data of a total of 171 participants were analyzed in the study. 40% of the patient group was female (N=24) with an age range of 18–64 (32.51±9.49), whereas 39.4% of the control group was female (N=43) with an age range of 18–64 (33.36±5.27). The control group consisted of 1 high school graduate and 108 university graduates. In the patient group, there were 1 secondary school, 24 high school and 32 university graduates. While there was no significant difference between the groups in terms of age (p=0.527) and gender (p=0.536), a significant difference was noted in terms of educational status (p=0.000).

Examination of schemas and schema domains of the patient and control groups:

Patient vs Control schema and schema domain are shown in Table 1.

In the next step, the relationship between OCI-R subscales and total score and EMS and EMS domains was analyzed by Pearson correlation analysis. Correlations between EMS, EMS domain, and OCI-R scores of SAD. are shown in Table 2.

**Table 1:** Patient vs control schema and schema domain

	Control (N=111) M (SD)	OCD SKB (N=60) M (SD)	p
<b>Measures of schemas and schema domains severity</b>			
Emotional deprivation	8.93 (3.71)	13.30 (8.11)	<001*
Abandonment/Instability	11.50(3.62)	13.80 (5.38)	0.004*
Mistrust/Abuse	12.30 (4.37)	14.97 (5.83)	0.003*
Socialisolation/Alienation	11.86 (3.83)	15.33 (7.29) <sup>a</sup>	0.001*
Defectiveness/Shame	8.71 (3.52)	13.02 (8.06)	<0.001*
Failure to achieve	9.07 (3.55)	12.73 (7.39)	0.001*
Dependence/Incompetence	8.42 (3.31)	11.63 (5.80)	<0.001*
Vulnerability to harm	11.14 (4.07)	14.35 (5.56)	<0.001*
Enmeshment	10.52 (4.13)	13.83 (5.76)	<0.001*
Subjugation	10.91 (4.06)	12.12 (6.40)	0.189
Self-sacrifice	16.41 (5.03)	16.98 (6.22)	0.518
Emotional inhibition	12.09 (4.46)	12.87 (5.80)	0.371
Unrelenting standards	16.77 (4.05)	16.93 (5.56)	0.842
Entitlement	15.59 (4.26)	15.62 (5.27)	0.986
Insufficient self-control	13.60(3.81)	15.82 (6.38)	0.016*
Approval/Admiration-seeking	15.83 (4.83)	17.25 (5.68)	0.089
Pessimism/Negativity	13.23 (4.08)	16.03 (5.97)	0.002*
Punitiveness	13.24 (3.82)	14.37 (5.90)	0.186
D& R	11.19 (2.91)	14.25 (5.29)	<0.001*
IAP	10.26 (2.81)	13.08 (4.67)	<0.001*
E& R	15.47 (3.08)	16.09 (4.81)	0.369
IL	15.00 (3.19)	16.23 (4.05)	0.033*

\* p<0.05, **DR:** Disconnection and rejection; **IAP:** Impaired Autonomy and Performance; **ERS:** Excessive Responsibility and Standards; **IL:** Impaired Limits; two independent samples t-test

**Table 2:** Correlations between EMS, EMS domain, and OCI-R scores of SAD

	Washing	Obsessing	Hoarding	Ordering	Checking	Neutralizng	Total
Emotional deprivation	0.074	0.323*	0.335**	0.285*	0.025	0.069	0.265*
Abandonment/Instability	0.219	0.425**	0.544**	0.446*	0.324**	0.289*	0.540**
Mistrust/Abuse	0.116	0.423**	0.550**	0.395**	0.411**	0.432**	0.555**
Socialisolation/Alienation	0.039	0.373**	0.460**	0.219	0.092	0.103	0.305*
Defectiveness/Shame	-0.049	0.475**	0.398**	0.177	0.229	0.079	0.309*
Failure to achieve	0.316*	0.403**	0.588**	0.477**	0.400**	0.124	0.559**
Dependence/Incompetence	0.348**	0.349**	0.499**	0.350**	0.371**	0.194	0.512**
Vulnerability to harm	0.145	0.354**	0.396**	0.332**	0.426**	0.319*	0.473**
Enmeshment	-0.012	0.090	0.218	0.441**	-0.030	0.185	0.212
Subjugation	0.025	0.240	0.305*	0.363**	0.274*	0.259*	0.350**
Self sacrifice	0.037	0.149	0.328*	0.438**	0.237	0.197	0.332**
Emotional inhibition	0.027	0.238	0.367**	0.086	0.243	0.186	0.271*
Unrelenting standards	0.002	0.347**	0.430**	0.338**	0.288*	0.271*	0.398**
Entitlement	0.182	0.293*	0.432**	0.357**	0.137	0.433**	0.439**
Insufficient self-control	-0.109	0.450**	0.217	0.071	0.124	0.011	0.178
Approval/Admiration-seeking	-0.163	0.384**	0.094	0.124	0.206	0.185	0.194
Pessimism/Negativity	0.191	0.341**	0.536**	0.526**	0.444**	0.445**	0.595**
Punitiveness	0.191	0.258*	0.527**	0.501**	0.409**	0.352**	0.538**
D& R	0.077	0.463**	0.561**	0.355**	0.289*	0.258*	0.479**
IAP	0.230	0.404**	0.556**	0.524**	0.386**	0.289*	0.575**
E& R	0.095	0.304*	0.523**	0.524**	0.381**	0.334**	0.516**
IL	-0.055	0.543**	0.345**	0.250	0.221	0.280*	0.375**

**D& R:** disconnection and rejection; **IAP:** impaired autonomy and performance; **IL:** impaired limits; **E& S:** excessive responsibility and standards; Pearson correlation test.

### HIERARCHIC REGRESSION ANALYSIS FOR OCI SUBSCALES

Lastly, hierarchical regression analysis was applied by including age and gender in the first stage and four schema domains in the second stage for each of the 6 subscales of OCI-R scale scores in individuals with OCD. Male gender {F (1,58)=4.971, p=0.030 with an adjusted R square 0.063} was determined to be a predictor for washing, IL{F (1,58)=24.255, p <0.001 with an adjusted R square. 283} for obsessing, DR {F (1,58)=26.582, p <0.001 with an adjusted R square 0.302} for hoarding, and ER {F (1,58)=7.27, p=0.009 with an adjusted R square 0.096} for neutralizing.

For ordering, ER {F (1,58)=21.909, p <0.001 with an adjusted R square 0.262} in Model 1 and ER {F (2,57)=15.529, p <0.001 with an adjusted R square 0.330} in Model 2 were male gender predictors. For checking, ER {F (1,58)=21.909, p <0.001 with an adjusted R square 0.262} in Model 1 and ER{F (2,57)=15.529, p <0.001 with an adjusted R square 0.330} in Model 2 were male gender predictors whereas for checking IAP in the model 1 and IAP in model 2 were found to be female gender predictors.

OCI-R hierarchical regression analysis was shown in Table 3.

**Table 3:** OCI-R hierarchical regression analysis

Model	Adj. R Square	B	SE	$\beta$	CI (LL/UL)
Washing	0.063				
Gender		2.375	1.065	0.281*	(0.243/4.507)
Obsessing	0.283				
IL		0.503	0.102	0.543	(0.298/0.707)
Hoarding	0.302				
DR		0.377	0.073	0.561	(0.231/0.523)
Ordering					
Model1	0.262				
E& S Model2		0.419	0.090	0.524	(0.240/0.599)
E& S Gender	0.330				
Checking		0.389	0.086	0.486	(0.217/0.562)
Model1		2.205	0.839	0.283	(0.526/3.885)
IAP					
Model2	0.134				
IAP		0.315	0.099	0.386	(0.117/0.512)
Gender	0.207				
Neutralizing		0.368	0.097	0.451	(0.174/0.562)
E& S		-2.300	0.916	-0.298	(-4.135/-0.465)
	0.096				
		0.252	0.093	0.334	(0.065/0.439)

\* p<0.05, \*\* p<0.01; **D& R:** disconnection and rejection; **IAP:** impaired autonomy and performance; **IL:** impaired limits; **E& S:** excessive responsibility and standards; **SE:** standard error, **CI:** Confidence Interval; **LL:** Lower Level; **UL:** Upper Level; multiple lineer regression analyses.

### DISCUSSION

Evaluation of the studies examining the relationship between OCD and early maladaptive schemas shows that the most common schemas are pessimism, social isolation, and vulnerability (Atalay et al., 2008; Karahan, 2006). In the study conducted by Atalay et al., in which OCD and EMS activation patterns were investigated, the YSQ total score of the OCD group was found to be significantly higher than the healthy control group. It was determined that the group with OCD had higher scores in social isolation, instability, pessimism, emotional inhibition, defectiveness, failure, dependence, submissiveness, unrelenting standards, entitlement and approval seeking schemes (Atalay et al. 2008). Consistently, we also found significant differences in the schemas of emotional deprivation, abandonment, insecurity/abuse, social isolation, imperfection, failure, dependence, vulnerability, intimacy, insufficient self-control, and indecision. In a 2011 study conducted in Turkey, a significant relationship was noted between the vulnerability schema and OCD in individuals with OCD (Akbas 2021) in line with our study, and in another study conducted in 2014, individuals with OCD had significantly higher scores in defectiveness, social isolation and failure compared to the healthy control group. schemas have been reported to have significantly higher scores (Kim, Lee, & Lee, 2014; Akbaş, 2021). The study conducted by Kızılğac and Cerit on the relationship between OCD and EMS in 51 OCD patients and 51 healthy volunteers demonstrated that individuals with OCD had significantly higher scores in abandonment, failure, pessimism, instability, emotional deprivation, social isolation, defectiveness, approval, insufficient self-control, self-sacrifice, and punitiveness schemes than the control group (Kizilgac & Cerit, 2019).

Early maladaptive schema scores were reported to be significantly higher in individuals with OCD in the study of Talee-Baktash, Yaghoubi, & Yousefi (2013), and Esmaeli et al. (2010), and Shariatzadeh et al. (2015), in line with the results of our study (Talee-Baktash et al., 2013; Esmaeli, Sohrabi, Borjali, & Farokhi, 2010; Shariatzadeh, Vaziri, & Mirhashemi, 2015). As in our study, Shariatzadeh focused on emotional deprivation and failure schemas among early maladaptive schemas (Shariatzadeh et al., 2015). In a 2014 study by Voderholzer et al., abandonment, dependence, and insufficient self-control schemes were reported to be higher in individuals with OCD (Voderholzer et al., 2014), similar to our study. Again, in the study by Kwak and Lee (2015), it was concluded that social isolation and defectiveness schemas were higher in individuals with OCD, similar to our results (Kwak & Lee, 2015).

Gender was also determined to be a predictive factor for OCI-R subscale scores, the effects of which are reported to vary according to different cultural contexts. In a Spanish study, men scored significantly higher than women on the hoarding and checking subscales, while in Iceland women scored significantly higher than men on the checking and ordering subscales. In Italy, men scored significantly higher than women on the washing, controlling and obsessing subscales. (Sica et al., 2009; Woo, Kwon, Lim, & Shin, 2010). Therefore, the effect of gender on OCI-R requires further investigation in other cultural contexts. In our study, male gender was found to be a predictor for the washing subscale. For ordering and checking, on the other hand, male gender contributed significantly to the model in the second stage.

In our study, obsessions were strongly associated with early maladaptive schemas of abandonment, insecurity/abuse, social isolation, defectiveness, failure, dependency, vulnerability, unrelenting standards, insufficient self-control, approval seeking, and pessimism, and “detachment and rejection” (DR), “impaired ability to do things” (IAP) and “impaired limits” (IL). Again, as shown by the hierarchical regression analysis performed in our study, “impaired limits” (IL) was found to be a predictor for “obsessing”. Parallel to the Kim et al.’s study (2014), our study found that obsessions were significantly related to instability and enmeshment schema and schema domains in particular (Kim et al., 2014). In another study conducted with individuals diagnosed with OCD, it was found that obsessions were positively and significantly associated with impaired autonomy, separation/exclusion, unrelenting standards, and others-directedness schema domains; compulsions, on the other hand, seem to have a positive and significant relationship only with impaired autonomy and separation/exclusion schema domains (Velibaşoğlu, 2014).

Our regression analyzes related to OCD subtypes failed to detect any predictor in the washing subtype other than male gender, which may be due to the small number of participants. However, our current findings indicate that there is no relationship between the washing subtype and the 4 schema domains. Obsessing subscale refers to intrusive and unwanted thoughts or images in individuals with OCD. We found that impaired limits schema domain was an effective predictor with regards to this subtype. Individuals with schemas in the IL domain have difficulty maintaining normal internal boundaries (Young et al., 2003). It is possible to associate the dominance of the IL

schema with the inability of individuals to set boundaries around their thoughts. Recognizing when these thoughts or images are excessive (out of control) can also be a secondary problem. Because of the possible negative effects of these thoughts, the responsibility for behavior control may lead to compulsive behaviors. The Hoarding subtype refers to the behavior of collecting and storing useless objects, which was predicted by the Disconnection and Rejection schema domain in our study. Schemas in this domain point to patterns associated with feelings of disconnection, rejection, and abandonment (Young et al., 2003). Feelings such as emotional attachment to objects and fear of losing can also form the basis of hoarding behaviors. Additionally, hoarding may act as a safety behavior by providing control and predictability against the experience of detachment. The Ordering subtype refers to ordering behaviors, whereas neutralizing describes mentally neutralizing behaviors. In our study, these two domains were found to be associated with the Excessive Responsibility and Standards schema domain. It can be thought that the schemas in this area are related to the need for control and meeting the excessively high standards of people through meticulousness. It can be said that excessive responsibility and high standards also make it a responsibility to find solutions by neutralizing the person. Lastly, the checking subtype points to behavior control, which was associated with impaired and performance schema domain (Young et al., 2003) in our study. Individuals with this schema domain think they will fail when they have to function independently and make decisions. They believe that this failure will have negative consequences and that they will not be able to cope with these consequences. The need to be sure of one’s behavior who falls under this schema domain may also be related to their lack of autonomous action.

The present study has some limitations such as the use of cross-sectional design and self-report questionnaires. In addition, our findings are representative of adults in the Turkish population and may differ between cultures.

Considering the hypothesis that each psychopathology exhibits unique schema activations (Hoffart, Versland, & Sexton 2002; Akbaş, 2021), increasing number of prospective studies examining OCD and its subtypes and early maladaptive schemas and schema domains will contribute to the literature in this field. Although the common denominator of the studies conducted is that certain EMSs are active in OCD, our study stands out in terms of examining subtypes and domain correlations.

**Ethics Committee Approval:** The study was approved by the Ethics Committee of fuk University (date and number of approval: 13.12.2021 / 12024861-83).

**Informed Consent:** Informed consent was obtained from all individual participants included in the study.

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** The authors declare no conflict of interest.

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