

## Article

# A Cross-Sectional Study of How Harm Avoidance, Incompleteness and Intolerance of Uncertainty Contribute to Obsessive–Compulsive Disorder in University Students

Anna Nisyrailou<sup>1,\*</sup>, Meropi Simou<sup>2</sup> and Gregoris Simos<sup>1,\*</sup> <sup>1</sup> Department of Educational and Social Policy, University of Macedonia, 54636 Thessaloniki, Greece<sup>2</sup> School of Psychology, Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece; info@meropisimou.com

\* Correspondence: anisiraou@uom.edu.gr (A.N.); gsimos@uom.edu.gr (G.S.)

**Abstract:** Research suggests that certain cognitive factors increase the likelihood of developing and maintaining obsessive–compulsive disorder (OCD). Such factors that are often associated with OCD are harm avoidance (HA), incompleteness (INC), and intolerance of uncertainty (IU). The present study aimed to examine the associations of intolerance of uncertainty, incompleteness, and harm avoidance with dimensions of obsessive–compulsive symptoms. Participants were 1128 university students (Mage = 19.42 St.d. = 2.02). Results showed that all subscales of the OCI-R correlated significantly with HA, INC, and IU, confirming the findings of previous studies. HA and INC appear to predict OC symptoms in a significant way. IU appears to correlate and improve the models, although to a lesser degree. The present findings contribute to our better understanding of the relationship between OCD symptoms and underlying cognitive variables and the nature of OCD heterogeneity.

**Keywords:** harm avoidance; incompleteness; intolerance of uncertainty; OCD; OCI-R; IUS-12 OC-TCDQ



**Citation:** Nisyrailou, A.; Simou, M.; Simos, G. A Cross-Sectional Study of How Harm Avoidance, Incompleteness and Intolerance of Uncertainty Contribute to Obsessive–Compulsive Disorder in University Students. *Psychiatry Int.* **2024**, *5*, 121–133. <https://doi.org/10.3390/psychiatryint5010009>

Academic Editor: Paolo Girardi

Received: 13 October 2023

Revised: 26 December 2023

Accepted: 27 February 2024

Published: 6 March 2024



**Copyright:** © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

Obsessive–compulsive disorder (OCD) is often described as a heterogeneous disorder with a thematic array of intrusions and obsessions [1]. Clinicians and researchers suggest that OCD symptoms may be classified into distinctive subtypes: (1) contamination-related obsessions and washing/cleaning rituals, (2) responsibility for harm and checking rituals, (3) a need for symmetry or order and arranging rituals, and (4) unacceptable thoughts (e.g., violence- or sex-related) and covert mental neutralising [2].

Theoretical models were proposed [3–5] that focus on cognitive factors, which appear to increase the likelihood of developing and maintaining OCD. Many suggest that obsessions occur when an otherwise unnecessary and unwelcome cognitive intrusion (e.g., the thought of harming a loved one) is misinterpreted catastrophically. For example, e.g., the interference can be misjudged as morally inappropriate or lead to an unintentional consequence. However, the attempt to dismiss the thought or alleviate the anxiety caused by the unwanted thought increases the preoccupation with the intrusive thoughts, which, in turn, does not allow their disconfirmation [6].

Dysfunctional beliefs and attributions about intrusive thoughts and the inability to tolerate anxiety play a role in the development and maintenance of OCD. According to researchers, such beliefs are “overestimating the sense of responsibility” [7,8]; “thought-action fusion” [9,10]; and cognitive assessments such as “perfectionism” [11–13], “overestimation of threat” [7,14], “intolerance of uncertainty” [15,16] “high sense of responsibility”, other beliefs about excessive “the importance of the consequences of one’s thoughts”, excessive “concern about the importance of mind control”, “harm avoidance” [5,17–20], “Not Just Right Experience” [21], and the expected criticism/rejection [22].

### 1.1. Harm Avoidance and Incompleteness

Researchers have recently begun to recognize the influence of underlying motivational factors that drive maladaptive behaviours and may be important in OCD, such as harm avoidance (HA) and incompleteness (INC) [23].

Summerfeldt et al. [24] proposed that harm avoidance and incompleteness are core dimensions that, either singly or in combination, underlie all OC phenomena. They proposed that there is no specific correspondence between the compulsion and the underlying driver. More specifically, individuals may repeatedly check whether they did a kitchen task in order to reassure themselves that they are safe. Nevertheless, they may just as well repeatedly check to ensure it was performed correctly until it feels complete [24–27]. In this context, various compulsions can be understood in relation to these two driving core dimensions.

Harm avoidance (HA) is a heritable tendency to respond strongly to unpleasant stimuli, causing the inhibition of behaviours that may lead to punishment, novelty, or frustration [28]. HA is a personality trait that has been described as a vulnerability factor for several anxiety disorders [29] and has been associated with anxiety, worrying, and a desire to prevent potential harm [30].

OCD patients demonstrate higher HA, often associated with increased severity in obsessive–compulsive symptoms [31–34]. Furthermore, people with OCD and their first-degree relatives showed significantly elevated scores of HA, supporting the idea that HA is a risk factor for familiarity with OCD [35].

On the other hand, incompleteness is “an inner sense of imperfection, connected with the perception that actions or intentions have been incompletely achieved” ([36] p. 80). Rasmussen and Eisen [37] identified abnormal risk assessment, pathological doubt, and incompleteness as primary components of OCD. Drawing on their work, Coles et al. [38] and Summerfeldt [39] noted that a broad subcategory of patients seem to be bothered by feelings of incompleteness or “Not Just Right Experiences” (NJREs) as a core phenomenon rather than by irrational anxiety. Subsequently, Summerfeldt et al. [30] proposed a two-dimensional “core affective-motivational model”. Recent findings support the Motivation Model of OCD and the notion that the motivational domains may be related to different levels of beliefs and symptoms [40].

Ecker and Gönner [26] proposed that the initiation of rituals prompted by obsessions may hinge on the degree of harm avoidance, while the perpetuation of these rituals is primarily influenced by a sense of incompleteness. The level of harm avoidance could indicate how individuals respond to intrusive thoughts, triggering anxiety and prompting anxiety-alleviating rituals. On the other hand, the levels of incompleteness may determine how easily behavioural sequences and rituals, whether induced by anxiety or other factors, can be terminated once they have begun [41].

Washing, checking, and neutralising compulsions are associated with both HA and INC [26,42,43], though one motivational factor may dominate. Incompleteness is associated with higher symptom severity [44] and a poorer response to therapy [45]. Therefore, patients with more severe overall symptomatology are more likely to have prominent INC [25]. Coles et al. [46] proposed that the desire for things to feel complete or “just right” plays an essential role in transitioning from initial obsessions and compulsions to full-blown OCD.

INC-driven OCD symptoms may result from a failure of a “stop signal” process, which marks that the behaviour reached its intended end and ought to stop [47,48]. Consequently, persistent “error signals” may inappropriately prompt ongoing corrective action [49,50]. In recent research with OCD patients, findings suggested that symptoms associated with feelings of incompleteness appear to be related to deficits in executive functioning and problem-solving [51].

A recent study showed that treatment reduced incompleteness and harm avoidance, and changes were positively correlated with changes in OCD severity. Importantly, when

accounting for covariance between variables, incompleteness alone was uniquely associated with a change in OCD severity [52].

### 1.2. Intolerance of Uncertainty

Another factor that appears to have a critical role in OCD is the intolerance of uncertainty (IU). IU refers to the tendency to display negative responses in the face of uncertain situations encompassing cognitive, emotional, and behavioural levels [53]. Individuals with high IU are inclined to view a new, unpredictable future with apprehension, perceiving uncertainty as a source of threat [16]. At the cognitive level, those high in IU tend to interpret ambiguous situations pessimistically, anticipating adverse events and experiencing negative emotions like anxiety and frustration [54]. Behaviourally, individuals with elevated IU may either avoid uncertain situations or engage in actions aimed at resolving ambiguity. Research suggests that IU is a transdiagnostic cognitive bias [55] that plays a role in the symptoms of several psychiatric disorders, including both Generalized Anxiety Disorder [56–58] and obsessive–compulsive disorder (OCD; [16,59]). A recent meta-analysis by McEvoy et al. [60] concluded that IU is a transdiagnostic process with a strong association with various disorders, including OCD.

People with obsessive–compulsive symptoms seem to be very careful and need more time to sort objects and more often ask for information to be repeated [61]. Also, they have more doubts about the correctness of their decisions [62]. Difficulties in decision-making can arise from beliefs about the need for certainty. The intolerance of uncertainty is characterized by the tendency of the individual to fear a new, unpredictable, and uncertain future and the belief that the feeling of uncertainty is threatening. Intolerance to uncertainty is seen in various forms of psychopathology and OCD [16].

Studies showed that IU predicted OC symptoms above responsibility, control, and threat estimation, even when controlling for depression and anxiety symptoms [59,63]. Furthermore, in a study with undergraduate students, IU was most strongly related to OC symptoms even when controlling for health anxiety and sensitivity to anxiety and neuroticism [64].

Furthermore, a study with in vivo exposures showed that IU predicted the urge to check; in a contamination test, it predicted avoidance, the urge to wash, and the duration of washing. In a sorting test, it predicted the urge to tidy and the duration of tidying. It did not predict neutralising [65]. Moreover, a recent study showed that IU mediates the association between NJREs and OCD in a clinical sample. Results supported the role of NJREs as motivators of OCD, and those IU beliefs mediate the association between NJREs and OCD probably because of the need to achieve a sense of certainty [66].

The present study aimed to examine the associations of intolerance of uncertainty, incompleteness, and harm avoidance with specific OC symptoms. To our knowledge, few studies incorporate these three factors and their predictability of OC symptoms.

## 2. Materials and Methods

### 2.1. Participants

In total, 1128 participants were included in the study, aged 18 to 35 ( $M_{age} = 19.42$ ,  $St.d. = 2.02$ ). They were all university students in Thessaloniki; 81.5% were from the University of Macedonia and 18.5% from the Aristotle University of Thessaloniki. Participants were from various schools across campus, of which 61.5% were first-year students, 28.9% were second-year, 3.6% were third-year, and the rest, 5.9% were seniors in their final years of university. Most participants were female, consisting of 65.3% of the total sample. Participation in the study was voluntary, and participants were given no money or credits. The Ethics Committee of the University of Macedonia approved the research.

### 2.2. Measures

Obsessive Compulsive Inventory-Revised (OCI-R; [67]). OCI-R measures the severity of OCD symptoms. It comprises 18 items divided into six sub-scales: washing, checking, or-

dering, hoarding, neutralisation, and obsessions. Participants' scores are rated on a 5-point scale (0 = Not at all, 1 = A little, 2 = Moderately, 3 = A lot, 4 = Extremely). In the current study, we used the Greek version of the OCI-R, which has proven good psychometric properties [68]. The internal consistency of the OCI-R was excellent, with Cronbach's Alpha  $\alpha = 0.86$ .

Obsessive–Compulsive Trait Core Dimension Questionnaire (OC-TCDQ; [30]). The OC-TCDQ is a 20-item self-report measure assessing HA (10 items) and INC (10 items). Each item is rated from 0 ("Never applies to me") to 4 ("Always applies to me"). In the current study, we used the Greek version of the OC-TCDQ. The scale was translated from English to Greek and back to English by two authors (AN and GS). Finally, any differences were discussed until they reached a consensus. The accuracy of these translations was reviewed by the study's third author (MS). In the present study, the OC-TCDQ showed excellent internal consistency with a Cronbach's Alpha of  $\alpha = 0.92$  and yielded a two-factor solution.

Intolerance of Uncertainty Scale-Short Form (IUS-12; [69]). IUS-12 is a 12-item self-report measure evaluating one's tendency to find uncertainty upsetting and distressing, and each item is scored on a 5-point Likert scale ranging from 1 (not at all characteristic of me) to 5 (entirely characteristic). IUS-12 consists of two factors: (1) Prospective Anxiety (7 items) and (2) Inhibitory Anxiety (5 items). Despite the reported multifactor structures, the IUS is commonly summed up as a total scale score [70]. The IUS-12 has proven excellent internal consistency and convergent and discriminant validity with a solid bifactor structure [71]. The IUS-12 showed excellent internal consistency in the present study with a Cronbach's alpha of  $\alpha = 0.87$ .

### 2.3. Procedure

Participants were all university undergraduates who were recruited from university classes. Participants were informed about the study's aim and purpose in their classrooms. Participation was voluntary, and individuals who agreed to participate were given a hard copy booklet, which included (1) a consent form, (2) a demographic form, (3) OCI-R, (4) IUS-12, and (5) OC-TCDQ. A written consent form was obtained from all participants. The authors of the study digitalized participants' responses. SPSS and Amos performed the data analysis.

### 2.4. Statistical Analysis

For the statistical analysis, the statistical software packages SPSS 21 and Amos 21 were utilized. Firstly, the factory structure of TCDQ was examined. Bentler and Chou [72] propose that a ratio of 5 cases per variable is adequate for normally distributed data. A commonly endorsed guideline suggests having a minimum of ten observations per indicator variable to ensure an acceptable sample size [73]. Consequently, considering those mentioned above, and since the observed variables were 20 items, we randomly extracted 25% from the primary data pool with SPSS 21.0, which resulted in 290 participants using Amos to perform Confirmatory Factor Analysis (CFA). CFA was used to test the goodness-of-fit of the hypothesized latent structure of the TCDQ (i.e., two correlated factors, each comprised of ten items). The residuals of the three items loading on each factor were correlated in the model. We examined two-factor solutions using maximum likelihood estimation with the correlation matrix. Model fit was determined using (1) chi-square, (2) Comparative Fit Index, (3) goodness of fit, (4) Standardized Root Mean Square Residual, (5) Root Mean Square Error of Approximation [74].

Descriptive statistics were computed, normality checks were conducted with most variables following a normal distribution, except for OCI\_Neutralising and OCI\_washing (Kolmogorov–Smirnov  $< 0.05$ ), and Pearson's correlation analysis was performed to examine relationships between variables. Linear regression modelling was then employed to further explore these relationships. The dependent variables were the OCI-R and subscales, and the independent variables were harm avoidance, incompleteness, and IU.

The Durbin–Watson statistic, nearing 2 (1.992), indicated minimal autocorrelation in the residuals, supporting the assumption of independence. However, collinearity diagnostics highlighted potential multicollinearity concerns among harm avoidance, incompleteness, and intolerance of uncertainty. Visual inspection of the residual plots, including the residuals vs. fitted values plot and scale-location plot, did not provide evidence against homoscedasticity.

### 3. Results

#### 3.1. Factor Analysis

The goodness of fit statistics are reported in Table 1. The original two-factor model (Table 1) had an adequate fit. Most standardized factor loadings were above 0.50, except for item 20 (loading was 0.48) ranging from 0.48 to 0.79. The two factors were significantly correlated:  $r = 0.792$ ,  $p < 0.001$ . The model fit was a reasonably good fit, with most fit indices being permissible; therefore, it was deemed appropriate for the present research. The fit index of GFI is sensitive to larger sample sizes and may present a downward bias [75].

**Table 1.** OC-TCDQ confirmatory factor indices.

	$\chi^2/df$	CFI	GFI	SRMR	RMSEA
2-Factor Model	2.61	0.90	0.87	0.058	0.075

#### 3.2. Descriptive Statistics and Correlations

Table 2 shows participants' means and standard deviations and Cronbach's alpha in all scales and their respective subscales. Table 3 shows correlations for all OCI-R subscales with HA, INC, and IUS-12. Table 4 shows correlations among the independent variables (HA, INC, and IUS).

**Table 2.** Means and standard deviations for age, all scales, and subscales.

	N	Mean	Std	$\alpha$
Age	1121	19.67	3.5	-
OCI-R Total	1120	26.05	12.4	0.86
OCI-R Hoarding	1119	4.66	2.7	0.57
OCI-R Checking	1120	4.79	3.1	0.67
OCI-R Ordering	1120	5.89	3.3	0.79
OCI-R Neutralising	1116	2.52	2.6	0.58
OCI-R Washing	1118	3.84	3.8	0.70
OCI-R Obsessing	1120	4.38	2.9	0.58
TCDQ Harm Avoidance	1119	27.16	7.8	0.86
TCDQ Incompleteness	1119	29.87	8	0.88
IUS-12 Total	1104	30.84	8.9	0.87
IU Prospective	1104	18.89	5.4	0.80
IU Inhibitory	1104	11.95	4.2	0.80

**Table 3.** Correlations coefficients among OCI-R, TCDQ subscales, and IU.

	TCDQ-HA	TCDQ-INC	IU
OCI -R Total	0.642 **	0.670 **	0.523 **
OCI-R Hoarding	0.477 **	0.431 **	0.405 **
OCI-R Checking	0.474 **	0.456 **	0.378 **
OCI-R Ordering	0.335 **	0.591 **	0.346 **
OCI-R Neutralising	0.384 **	0.387 **	0.327 **
OCI-R Washing	0.434 **	0.468 **	0.306 **
OCI-R Obsessing	0.610 **	0.464 **	0.448 **

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 4.** Correlations among HA, INC, and IU.

	1	2	3
1 TCDQ-HA	1		
2 TCDQ-INC	0.680 **	1	
3 IU	0.587 **	0.593 **	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

### 3.3. Regression Analysis

A stepwise regression was used to examine which factors can predict OCD symptom severity as a total (Table 5) and each symptom dimension separately (Table 6).

**Table 5.** Stepwise regression with OCI-R total as DV and incompleteness, harm avoidance, and intolerance of uncertainty as independent variables.

DV	IV	R <sup>2</sup>	ΔR <sup>2</sup>	B	β	t	Sig	F
OCI-Total	INC	0.448	0.448	0.609	0.394	13.08	0.000	F(1,1102) = 895.587
	HA	0.515	0.066	0.498	0.316	10.55	0.000	F(2,1101) = 584.037
	IU	0.521	0.006	0.145	0.104	3.80	0.000	F(3,1100) = 398.965

**Table 6.** Linear regression analysis with dependent variable OCI-R subscales and independent variable incompleteness, harm avoidance, IU.

DV	IV	R <sup>2</sup>	B	SEB	β	t	Sign.
OCI-R Hoarding	HA	0.264	0.102	0.297	0.295	7.95	0.000
	INC		0.050	0.013	0.149	3.99	0.000
	IU		0.043	0.01	0.142	4.17	0.000
F(3,1099) = 131.181, <i>p</i> < 0.001							
OCI-R Checking	HA	0.262	0.109	0.015	0.277	7.45	0.000
	INC		0.083	0.014	0.215	5.75	0.000
	IU		0.031	0.012	0.088	2.6	0.009
F(3,1100) = 130.245, <i>p</i> < 0.001							
OCI-R Ordering	HA	0.356	−0.057	0.015	−0.135	−3.90	0.000
	INC		0.272	0.014	0.661	18.96	0.000
	IU		0.012	0.012	0.033	1.055	0.292
F(3,1100) = 202.803, <i>p</i> < 0.001							
OCI-R Neutralising	HA	0.179	0.062	0.013	0.192	4.89	0.000
	INC		0.061	0.013	0.192	4.88	0.000
	IU		0.029	0.010	0.100	2.79	0.005
F(3,1096) = 79.741, <i>p</i> < 0.001							
OCI-R Washing	HA	0.244	0.089	0.015	0.227	6.02	0.000
	INC		0.125	0.014	0.326	8.61	0.000
	IU		−0.008	0.012	−0.022	−0.632	0.528
F(3,1098) = 118.022, <i>p</i> < 0.001							
OCI-R Obsessing	HA	0.392	0.191	0.013	0.514	15.24	0.000
	INC		0.018	0.012	0.049	1.46	0.145
	IU		0.039	0.010	0.117	3.80	0.000
F(3,1100) = 236.398, <i>p</i> < 0.001							

## 4. Discussion

The present study examined the associations and predictive value of intolerance of uncertainty, harm avoidance, and incompleteness with OC symptoms in a Greek non-clinical young adult sample.

The proposed factor structure of the OC-TCDQ was empirically supported in this study, as previous findings suggest [30]. The two-factor structure model yielded acceptable



results. The CFI and GFI indexes were borderline unacceptable; however, the literature shows that these bounds are not absolute and should be interpreted as indications that the model fits the data well [76]. With the other indices showing good fit, we concluded that the measure had adequate factor structure for this study without further modifications.

The internal consistency was high for all scales (OCI-R, OC-TCDQ, and IU) and good for all the subscales. Only three (hoarding, neutralising, obsessing) subscales of the OCI-R reported lower Cronbach's alpha, which is consistent with previous findings that also showed lower values that were still above 0.50 [77–80].

All subscales of the OCI-R correlated significantly with HA, INC, and IU, confirming the well-known relationship between OCD symptoms and relevant belief domains [26,65]. In the stepwise regression analysis, HA and INC predict OC symptoms significantly. IU appears to improve the models, however, to a lesser degree. From all symptom dimensions, ordering shows the strongest INC association, while washing was substantially associated but to a somewhat weaker extent. On the other hand, obsessing showed no significant association with INC.

More specifically, hoarding appeared to have a strong association with HA and far less with INC and IU. Previous studies suggest that there is a non-significant association between INC and hoarding [26,39,81]. Although our results support this finding, it is appropriate to recognize that recent studies suggest that the hoarding dimension is not central to the symptom dimension network of OCD [82]. This is in line with the current classification of hoarding disorder as a mental disorder distinct from OCD [83], suggesting that further studies on hoarding are needed, which will be more specific to the conceptualization of hoarding, like whether HA is associated with other dimensions relating to hoarding, i.e., the avoidance of grief [84].

Checking was associated with both INC and HA. IU appeared to have a smaller effect than the other factors. These results are consistent with the claim that checking is associated with HA and INC [26,42,43]. However, as other studies suggest, the IU did not appear as strong as HA and INC in predicting checking [65]. However, many researchers hypothesized that HA likely motivated checking [25,27,85]. The present results are consistent with Ecker and Gonner [26], who found that HA and INC both predicted checking; their main hypothesis to explain this finding was that while HA may trigger the initiation of checking rituals, INC may be responsible for the subsequent failure to terminate them. The hypothesis was also supported by Summerfeldt [39], who further differentiated harm-avoidant checking from checking as a compulsion in general, suggesting that the latter could also be explained by INC [81]. A consensus seems to be that checking may be motivated by either HA or INC in a particular individual [23]. Even though IU was found to predict compulsions relating to checking in multiple studies, it is interesting that when it is in a model with HA and INC, it does not show unique associations above them. This finding may be explained by the idea that IU has been found to increase threat expectancy and biased threat appraisal [86]. Therefore, IU may increase HA tendencies.

INC is the strongest predictor of OCI-R Ordering. This pattern of results is consistent with the previous literature that indicates not-just-right phenomena have a prominent role in ordering/symmetry [87–89]. Moreover, Radomsky and Rachman [90] emphasize the rarity of harm-related cognitions in their subjects with elevated ordering scores; this may explain that HA showed a negative association with ordering even though no one reported such a strong relationship. Recent research found incompleteness predicted ordering even after controlling for HA [91]. The results imply that incompleteness may be more important to some types of OCD symptoms. Finally, IU did not seem to have a statistically significant impact on ordering.

HA and INC have significant positive influences on neutralising, with HA having a slightly more robust influence. Cognitive symptoms of OCD usually show a more robust HA association [26]. However, recent findings [89] show that INC has a strong association even after controlling for HA. IU also has a positive influence but is less pronounced than HA and INC. However, this model explains approximately 17.9% of the variance. This

pattern of results is consistent with the previous literature showing that neutralising does not have a unique association with either HA or IN [26].

INC, and to a lesser degree, HA, strongly predicted washing, while IU was not associated with washing. Washing appears to have mixed HA and INC motivation. Washing may include fears of harm by becoming contaminated [26]. Ólafsson et al. [92] suggest that not-just-right experiences and levels of incompleteness partially mediate the relationship between disgust and contamination fear. As was mentioned in checking, HA may motivate the initiation of washing rituals, while INC perpetuates the rituals. A study showed that induced INC/NJREs correlated with compulsion severity and were associated with ordering, washing, and hoarding symptoms [93].

Obsessing was uniquely associated with HA, far less with IU, but not with INC. The present results are consistent with Schreck et al.'s [94] findings that showed HA had unique associations, predominantly with cognitive symptoms such as doubting, obsessing, and neutralising symptoms. One interpretation of these findings is that the cognitive-behavioural model of OCD emphasizes the role of HA beliefs like inflated personal responsibility and the overestimation of threat [95] as prominent in the development of OCD.

Research suggests that there is a large proportion of OCD patients, around 40%, that do not try to avoid harm, but they feel discomfort when they try to discontinue their rituals [91,96]. Two studies with large clinical OCD samples identify “low beliefs” subgroups of OCD sufferers ([97] 56% of the sample, [98] 51% of the sample) “who do not report elevated personal responsibility, threat estimation, perfectionism, intolerance of uncertainty, or over-importance and over-control of thought” ([97] p. 1357). Our findings highlight the possibility that these patients may be associated with feelings of incompleteness or “not just right experiences”. This idea is further supported by the fact that some patients with OCD show resistance to conventional CBT therapy, which consists of a strong cognitive component closer to harm-avoidant symptoms. In a recent study, the initial findings from the comparison between harm avoidance (HA) and incompleteness (INC) generally point toward the conclusion that current implementations of cognitive-behavioural therapy (CBT) for OCD may not effectively address incompleteness symptoms [99].

On the other hand, Foa et al. [45] report a trend toward poorer behaviour therapy outcomes for OCD symptoms without a harm-avoidant component (only 45% symptom reduction vs. 69% for harm-avoidant OCD). Hence, assessing motivational factors that may have important implications for therapeutic interventions is essential. Furthermore, Sperling [100] showed that IU before CBT therapy was an indicator of the effectiveness of therapy, with participants with higher IU showing less improvement throughout therapy. Even though IU did not emerge as a prominent factor in the present research, it is vital to understand its role in OCD. In terms of future research, it would be useful to extend the current findings by examining in a prospective study which factor may predict OCD symptom severity and the relationship that these cognitive factors have among them.

Several key limitations should be noted. Firstly, the participants were all university students, so the results might not necessarily be representative. Other factors that may also affect university students, such as substances, were not considered in this study. Secondly, conclusions concerning the OCD specificity of INC and HA are premature because of the lack of clinical and non-clinical control groups. Finally, the cross-sectional nature of our data precludes causal inferences. Despite these limitations, the present study enhanced our understanding of the relationship between OCD symptoms, HA, INC, and IU. We hope that the current research will stimulate further investigation of this important area. Our results align with Summerfeldt's [39,81] model, which proposed that INC and HA may be motivational “core dimensions” contributing to a better understanding of OCD heterogeneity. Unfortunately, IU did not emerge as a robust predicting factor.



**Author Contributions:** Conceptualization, A.N. and G.S.; methodology, A.N. and G.S.; software, A.N.; validation, A.N., G.S. and M.S.; formal analysis, A.N.; data curation, A.N.; writing—original draft preparation, A.N.; writing—review and editing, G.S. and M.S.; supervision, G.S. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** The study was conducted in accordance with the Declaration of Helsinki. The research methodology, including the tools, was approved by the Research Ethics and Ethics Committee of the University of Macedonia with protocol number 12/4-6-2018 (4 June 2018).

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** The data are not publicly available because of ongoing research. The data presented in this study may be available on request from the corresponding author.

**Conflicts of Interest:** The authors declare no conflicts of interest.

## References

1. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed.; American Psychiatric Publishing: Arlington, VA, USA, 2013.
2. Abramowitz, J.S.; Deacon, B.J.; Olatunji, B.O.; Wheaton, M.G.; Berman, N.C.; Losardo, D.; Timpano, K.R.; McGrath, P.B.; Riemann, B.C.; Adams, T.; et al. Assessment of Obsessive-Compulsive Symptom Dimensions: Development and Evaluation of the Dimensional Obsessive-Compulsive Scale. *Psychol. Assess.* **2010**, *22*, 180–198. [\[CrossRef\]](#)
3. Rachman, S.; de Silva, P. Abnormal and Normal Obsessions. *Behav. Res. Ther.* **1978**, *16*, 233–248. [\[CrossRef\]](#) [\[PubMed\]](#)
4. Rachman, S. A Cognitive Theory of Obsessions. In *Behavior and Cognitive Therapy Today*; Elsevier: Amsterdam, The Netherlands, 1998; pp. 209–222. [\[CrossRef\]](#)
5. Obsessive Compulsive Cognitions Working Group. Psychometric Validation of the Obsessive Belief Questionnaire and Interpretation of Intrusions Inventory—Part 2: Factor Analyses and Testing of a Brief Version. *Behav. Res. Ther.* **2005**, *43*, 1527–1542. [\[CrossRef\]](#)
6. Calkins, A.W.; Berman, N.C.; Wilhelm, S. Recent Advances in Research on Cognition and Emotion in OCD: A Review. *Curr. Psychiatry Rep.* **2013**, *15*, 357. [\[CrossRef\]](#) [\[PubMed\]](#)
7. Salkovskis, P.M. Obsessional-Compulsive Problems: A Cognitive-Behavioural Analysis. *Behav. Res. Ther.* **1985**, *23*, 571–583. [\[CrossRef\]](#)
8. Salkovskis, P.M. Cognitive-Behavioural Factors and the Persistence of Intrusive Thoughts in Obsessional Problems. *Behav. Res. Ther.* **1989**, *27*, 677–682. [\[CrossRef\]](#)
9. Shafran, R.; Thordarson, D.S.; Rachman, S. Thought-Action Fusion in Obsessive Compulsive Disorder. *J. Anxiety Disord.* **1996**, *10*, 379–391. [\[CrossRef\]](#)
10. Zhu, Y.; Xu, W.; Fu, Z.; Yu, M.; Xu, Q.; Wang, J.; Chasson, G.S. Thought-Action Fusion Mediates the Relation between Inflated Responsibility and Obsessive-Compulsive Symptoms in China: A Cross-Sectional Structural Equation Model. *J. Obs.-Compuls. Relat. Disord.* **2017**, *12*, 23–28. [\[CrossRef\]](#)
11. Frost, R.O.; Steketee, G. Perfectionism in Obsessive-Compulsive Disorder Patients. *Behav. Res. Ther.* **1997**, *35*, 291–296. [\[CrossRef\]](#)
12. Gershuny, B.S.; Sher, K.J. Compulsive Checking and Anxiety in a Nonclinical Sample: Differences in Cognition, Behavior, Personality, and Affect. *J. Psychopathol. Behav. Assess.* **1995**, *17*, 19–38. [\[CrossRef\]](#)
13. Frost, R.O.; Gross, R.C. The Hoarding of Possessions. *Behav. Res. Ther.* **1993**, *31*, 367–381. [\[CrossRef\]](#)
14. Foa, E.B.; Kozak, M.J. Emotional Processing of Fear: Exposure to Corrective Information. *Psychol. Bull.* **1986**, *99*, 20–35. [\[CrossRef\]](#) [\[PubMed\]](#)
15. Lind, C.; Boschen, M.J. Intolerance of Uncertainty Mediates the Relationship between Responsibility Beliefs and Compulsive Checking. *J. Anxiety Disord.* **2009**, *23*, 1047–1052. [\[CrossRef\]](#)
16. Gentes, E.L.; Ruscio, A.M. A Meta-Analysis of the Relation of Intolerance of Uncertainty to Symptoms of Generalized Anxiety Disorder, Major Depressive Disorder, and Obsessive-Compulsive Disorder. *Clin. Psychol. Rev.* **2011**, *31*, 923–933. [\[CrossRef\]](#) [\[PubMed\]](#)
17. Obsessive Compulsive Cognitions Working Group. Cognitive Assessment of Obsessive-Compulsive Disorder. *Behav. Res. Ther.* **1997**, *35*, 667–681. [\[CrossRef\]](#)
18. Obsessive Compulsive Cognitions Working Group. Development and Initial Validation of the Obsessive Beliefs Questionnaire and the Interpretation of Intrusions Inventory. *Behav. Res. Ther.* **2001**, *39*, 987–1006. [\[CrossRef\]](#) [\[PubMed\]](#)
19. Obsessive Compulsive Cognitions Working Group. Psychometric Validation of the Obsessive Beliefs Questionnaire and the Interpretation of Intrusions Inventory: Part I. *Behav. Res. Ther.* **2003**, *41*, 863–878. [\[CrossRef\]](#) [\[PubMed\]](#)
20. Barrett, P.M.; Healy, L.J. An Examination of the Cognitive Processes Involved in Childhood Obsessive-Compulsive Disorder. *Behav. Res. Ther.* **2003**, *41*, 285–299. [\[CrossRef\]](#)

21. Bottesi, G.; Ghisi, M.; Sica, C.; Freeston, M.H. Intolerance of Uncertainty, Not Just Right Experiences, and Compulsive Checking: Test of a Moderated Mediation Model on a Non-Clinical Sample. *Compr. Psychiatry* **2017**, *73*, 111–119. [\[CrossRef\]](#)
22. Riskind, J.H.; Wright, E.C.; Scott, M. Anticipated Criticism/Rejection and Negative Self-Appraisals: Do They Independently Predict OCD Symptoms and the Negative Significance of Intrusive Thoughts? *Int. J. Cogn. Ther.* **2018**, *11*, 4–16. [\[CrossRef\]](#)
23. Pallanti, S.; Barnes, J.; Pittenger, C.; Eisen, J. Incompleteness and Harm Avoidance in OCD. In *Obsessive-Compulsive Disorder: Phenomenology, Pathophysiology, and Treatment*; Oxford University Press: New York, NY, USA, 2017. [\[CrossRef\]](#)
24. Summerfeldt, L.J.; Kloosterman, P.H.; Antony, M.M.; Richter, M.A.; Swinson, R.P. The Relationship between Miscellaneous Symptoms and Major Symptom Factors in Obsessive-Compulsive Disorder. *Behav. Res. Ther.* **2004**, *42*, 1453–1467. [\[CrossRef\]](#)
25. Calamari, J.E.; Wiegartz, P.S.; Riemann, B.C.; Cohen, R.J.; Greer, A.; Jacobi, D.M.; Jahn, S.C.; Carmin, C. Obsessive-Compulsive Disorder Subtypes: An Attempted Replication and Extension of a Symptom-Based Taxonomy. *Behav. Res. Ther.* **2004**, *42*, 647–670. [\[CrossRef\]](#)
26. Ecker, W.; Gönner, S. Incompleteness and Harm Avoidance in OCD Symptom Dimensions. *Behav. Res. Ther.* **2008**, *46*, 895–904. [\[CrossRef\]](#) [\[PubMed\]](#)
27. McKay, D.; Abramowitz, J.S.; Calamari, J.E.; Kyrios, M.; Radosky, A.; Sookman, D.; Taylor, S.; Wilhelm, S. A Critical Evaluation of Obsessive-Compulsive Disorder Subtypes: Symptoms versus Mechanisms. *Clin. Psychol. Rev.* **2004**, *24*, 283–313. [\[CrossRef\]](#) [\[PubMed\]](#)
28. Cloninger, C.R. A Psychobiological Model of Temperament and Character. *Arch. Gen. Psychiatry* **1993**, *50*, 975. [\[CrossRef\]](#)
29. Cloninger, C.R.; Zohar, A.H.; Hirschmann, S.; Dahan, D. The Psychological Costs and Benefits of Being Highly Persistent: Personality Profiles Distinguish Mood Disorders from Anxiety Disorders. *J. Affect. Disord.* **2012**, *136*, 758–766. [\[CrossRef\]](#) [\[PubMed\]](#)
30. Summerfeldt, L.J.; Kloosterman, P.H.; Antony, M.M.; Swinson, R.P. Examining an Obsessive-Compulsive Core Dimensions Model: Structural Validity of Harm Avoidance and Incompleteness. *J. Obs.-Compuls. Relat. Disord.* **2014**, *3*, 83–94. [\[CrossRef\]](#)
31. Alonso, P.; Menchón, J.M.; Jiménez, S.; Segalàs, J.; Mataix-Cols, D.; Jaurrieta, N.; Labad, J.; Vallejo, J.; Cardoner, N.; Pujol, J. Personality Dimensions in Obsessive-Compulsive Disorder: Relation to Clinical Variables. *Psychiatry Res.* **2008**, *157*, 159–168. [\[CrossRef\]](#)
32. Corchs, F.; Corregiari, F.; Ferrão, Y.A.; Takakura, T.; Mathis, M.E.; Lopes, A.C.; Miguel, E.C.; Bernik, M. Personality Traits and Treatment Outcome in Obsessive-Compulsive Disorder. *Rev. Bras. Psiquiatr.* **2008**, *30*, 246–250. [\[CrossRef\]](#)
33. Lyoo, I.K.; Lee, D.W.; Kim, Y.S.; Kong, S.W.; Kwon, J.S. Patterns of Temperament and Character in Subjects with Obsessive-Compulsive Disorder. *J. Clin. Psychiatry* **2001**, *62*, 637–641. [\[CrossRef\]](#)
34. Lyoo, I.K.; Yoon, T.; Kang, D.H.; Kwon, J.S. Patterns of Changes in Temperament and Character Inventory Scales in Subjects with Obsessive-Compulsive Disorder Following a 4-Month Treatment. *Acta Psychiatr. Scand.* **2003**, *107*, 298–304. [\[CrossRef\]](#)
35. Ettelt, S.; Grabe, H.J.; Ruhrmann, S.; Buhtz, F.; Hochrein, A.; Kraft, S.; Pukrop, R.; Klosterkötter, J.; Falkai, P.; Maier, W.; et al. Harm Avoidance in Subjects with Obsessive-Compulsive Disorder and Their Families. *J. Affect. Disord.* **2008**, *107*, 265–269. [\[CrossRef\]](#) [\[PubMed\]](#)
36. Summerfeldt, L.J.; Huta, V.; Swinson, R.P. Personality and Obsessive-Compulsive Disorder. In *Obsessive-Compulsive Disorder: Theory, Research, and Treatment*; The Guildford Press: New York, NY, USA, 1998; pp. 79–119.
37. Rasmussen, S.A.; Eisen, J.L. The Epidemiology and Clinical Features of Obsessive Compulsive Disorder. *Psychiatr. Clin. N. Am.* **1992**, *15*, 743–758. [\[CrossRef\]](#)
38. Coles, M.E.; Frost, R.O.; Heimberg, R.G.; Rhéaume, J. “Not Just Right Experiences”: Perfectionism, Obsessive-Compulsive Features and General Psychopathology. *Behav. Res. Ther.* **2003**, *41*, 681–700. [\[CrossRef\]](#) [\[PubMed\]](#)
39. Summerfeldt, L.J. Understanding and Treating Incompleteness in Obsessive-compulsive Disorder. *J. Clin. Psychol.* **2004**, *60*, 1155–1168. [\[CrossRef\]](#) [\[PubMed\]](#)
40. Bragdon, L.B.; Coles, M.E. Examining Heterogeneity of Obsessive-Compulsive Disorder: Evidence for Subgroups Based on Motivations. *J. Anxiety Disord.* **2017**, *45*, 64–71. [\[CrossRef\]](#) [\[PubMed\]](#)
41. Hinds, A.L.; Woody, E.Z.; Van Ameringen, M.; Schmidt, L.A.; Szechtman, H. When Too Much Is Not Enough: Obsessive-Compulsive Disorder as a Pathology of Stopping, Rather than Starting. *PLoS ONE* **2012**, *7*, e30586. [\[CrossRef\]](#) [\[PubMed\]](#)
42. Pietrefesa, A.S.; Coles, M.E. Moving beyond an Exclusive Focus on Harm Avoidance in Obsessive Compulsive Disorder: Considering the Role of Incompleteness. *Behav. Ther.* **2008**, *39*, 224–231. [\[CrossRef\]](#)
43. Pietrefesa, A.S.; Coles, M.E. Moving beyond an Exclusive Focus on Harm Avoidance in Obsessive-Compulsive Disorder: Behavioral Validation for the Separability of Harm Avoidance and Incompleteness. *Behav. Ther.* **2009**, *40*, 251–259. [\[CrossRef\]](#)
44. Ferrão, Y.A.; Shavitt, R.G.; Prado, H.; Fontenelle, L.F.; Malavazzi, D.M.; de Mathis, M.A.; Hounie, A.G.; Miguel, E.C.; do Rosário, M.C. Sensory Phenomena Associated with Repetitive Behaviors in Obsessive-Compulsive Disorder: An Exploratory Study of 1001 Patients. *Psychiatry Res.* **2012**, *197*, 253–258. [\[CrossRef\]](#)
45. Foa, E.B.; Abramowitz, J.S.; Franklin, M.E.; Kozak, M.J. Feared Consequences, Fixity of Belief, and Treatment Outcome in Patients with Obsessive-Compulsive Disorder. *Behav. Ther.* **1999**, *30*, 717–724. [\[CrossRef\]](#)
46. Coles, M.E.; Hart, A.S.; Schofield, C.A. Initial Data Characterizing the Progression from Obsessions and Compulsions to Full-Blown Obsessive Compulsive Disorder. *Cogn. Ther. Res.* **2011**, *36*, 685–693. [\[CrossRef\]](#)

47. Zor, R.; Szechtman, H.; Hermesh, H.; Fineberg, N.A.; Eilam, D. Manifestation of Incompleteness in Obsessive-Compulsive Disorder (OCD) as Reduced Functionality and Extended Activity beyond Task Completion. *PLoS ONE* **2011**, *6*, e25217. [[CrossRef](#)] [[PubMed](#)]
48. Szechtman, H.; Woody, E. Obsessive-Compulsive Disorder as a Disturbance of Security Motivation. *Psychol. Rev.* **2004**, *111*, 111–127. [[CrossRef](#)] [[PubMed](#)]
49. Maltby, N.; Tolin, D.F.; Worhunsky, P.; O’Keefe, T.M.; Kiehl, K.A. Dysfunctional Action Monitoring Hyperactivates Frontal–Striatal Circuits in Obsessive–Compulsive Disorder: An Event-Related Fmri Study. *NeuroImage* **2005**, *24*, 495–503. [[CrossRef](#)] [[PubMed](#)]
50. van Veen, V.; Carter, C.S. The Timing of Action-Monitoring Processes in the Anterior Cingulate Cortex. *J. Cogn. Neurosci.* **2002**, *14*, 593–602. [[CrossRef](#)] [[PubMed](#)]
51. Cameron, D.H.; Streiner, D.L.; Summerfeldt, L.J.; Rowa, K.; McKinnon, M.C.; McCabe, R.E. A Comparison of Cluster and Factor Analytic Techniques for Identifying Symptom-Based Dimensions of Obsessive-Compulsive Disorder. *Psychiatry Res.* **2019**, *278*, 86–96. [[CrossRef](#)]
52. Cervin, M.; Perrin, S.; Olsson, E.; Claesdotter-Knutsson, E.; Lindvall, M. Incompleteness, Harm Avoidance, and Disgust: A Comparison of Youth with OCD, Anxiety Disorders, and No Psychiatric Disorder. *J. Anxiety Disord.* **2020**, *69*, 102175. [[CrossRef](#)]
53. Freeston, M.H.; Ladouceur, R.; Rhéaume, J.; Letarte, H.; Gagnon, F.; Thibodeau, N. Self-Report of Obsessions and Worry. *Behav. Res. Ther.* **1994**, *32*, 29–36. [[CrossRef](#)]
54. Dugas, M.J.; Buhr, K.; Ladouceur, R. The Role of Intolerance of Uncertainty in Etiology and Maintenance. In *Generalized Anxiety Disorder: Advances in Research and Practice*; Heimberg, R.G., Turk, C.L., Mennin, D.S., Eds.; The Guilford Press: New York, NY, USA, 2004; pp. 143–163.
55. Carleton, R.N.; Mulvogue, M.K.; Thibodeau, M.A.; McCabe, R.E.; Antony, M.M.; Asmundson, G.J.G. Increasingly Certain about Uncertainty: Intolerance of Uncertainty across Anxiety and Depression. *J. Anxiety Disord.* **2012**, *26*, 468–479. [[CrossRef](#)]
56. Buhr, K.; Dugas, M.J. Investigating the Construct Validity of Intolerance of Uncertainty and Its Unique Relationship with Worry. *J. Anxiety Disord.* **2006**, *20*, 222–236. [[CrossRef](#)]
57. Holaway, R.M.; Heimberg, R.G.; Coles, M.E. A Comparison of Intolerance of Uncertainty in Analogue Obsessive-Compulsive Disorder and Generalized Anxiety Disorder. *J. Anxiety Disord.* **2006**, *20*, 158–174. [[CrossRef](#)]
58. McEvoy, P.M.; Mahoney, A.E.J. To Be Sure, to Be Sure: Intolerance of Uncertainty Mediates Symptoms of Various Anxiety Disorders and Depression. *Behav. Ther.* **2012**, *43*, 533–545. [[CrossRef](#)]
59. Tolin, D.F.; Woods, C.M.; Abramowitz, J.S. Relationship between Obsessive Beliefs and Obsessive-Compulsive Symptoms. *Cogn. Ther. Res.* **2003**, *27*, 657–669. [[CrossRef](#)]
60. McEvoy, P.M.; Hyett, M.P.; Shihata, S.; Price, J.E.; Strachan, L. The Impact of Methodological and Measurement Factors on Transdiagnostic Associations with Intolerance of Uncertainty: A Meta-Analysis. *Clin. Psychol. Rev.* **2019**, *73*, 101778. [[CrossRef](#)] [[PubMed](#)]
61. Frost, R.O.; Lahart, C.M.; Dugas, K.M.; Sher, K.J. Information Processing among Non-Clinical Compulsives. *Behav. Res. Ther.* **1988**, *26*, 275–277. [[CrossRef](#)] [[PubMed](#)]
62. Frost, R.O.; Shows, D.L. The Nature and Measurement of Compulsive Indecisiveness. *Behav. Res. Ther.* **1993**, *31*, 683–692. [[CrossRef](#)] [[PubMed](#)]
63. Steketee, G.; Frost, R.O.; Cohen, I. Beliefs in Obsessive-Compulsive Disorder. *J. Anxiety Disord.* **1998**, *12*, 525–537. [[CrossRef](#)] [[PubMed](#)]
64. Boelen, P.A.; Carleton, R.N. Intolerance of Uncertainty, Hypochondriacal Concerns, Obsessive-Compulsive Symptoms, and Worry. *J. Nerv. Ment. Dis.* **2012**, *200*, 208–213. [[CrossRef](#)] [[PubMed](#)]
65. Sarawgi, S.; Oglesby, M.E.; Cougle, J.R. Intolerance of Uncertainty and Obsessive-Compulsive Symptom Expression. *J. Behav. Ther. Exp. Psychiatry* **2013**, *44*, 456–462. [[CrossRef](#)] [[PubMed](#)]
66. Pascual-Vera, B.; Belloch, A.; Ghisi, M.; Sica, C.; Bottesi, G. To Achieve a Sense of Rightness: The Joint Role of Not Just Right Experiences and Intolerance of Uncertainty in Obsessive-Compulsive Disorder. *J. Obs.-Compuls. Relat. Disord.* **2021**, *29*, 100627. [[CrossRef](#)]
67. Foa, E.B.; Huppert, J.D.; Leiberg, S.; Langner, R.; Kichic, R.; Hajcak, G.; Salkovskis, P.M. The Obsessive-Compulsive Inventory: Development and Validation of a Short Version. *Psychol. Assess.* **2002**, *14*, 485–496. [[CrossRef](#)] [[PubMed](#)]
68. Simos, G.; Zikopoulou, O.; Nisyrailou, A.; Zafropoulos, K. Psychometric Properties of the Greek Version of the Obsessive-Compulsive Inventory-Revised in a Non-Clinical Young Adult Sample. *Psychology* **2019**, *10*, 2247–2265. [[CrossRef](#)]
69. Carleton, R.N.; Norton, M.A.P.; Asmundson, G.J.G. Fearing the Unknown: A Short Version of the Intolerance of Uncertainty Scale. *J. Anxiety Disord.* **2007**, *21*, 105–117. [[CrossRef](#)] [[PubMed](#)]
70. Antony, M.M.; Orsillo, S.M.; Roemer, L. *Practitioner’s Guide to Empirically Based Measures of Anxiety*; Boston Kluwer Academic Publishers: Boston, MA, USA, 2002.
71. Simos, G.; Nisyrailou, A. Factor Structure, Validity and Reliability of the Intolerance of Uncertainty Scale-12 (Ius-12) in a Greek Undergraduate Sample. *Psychiatry Int.* **2023**, *4*, 68–78. [[CrossRef](#)]
72. Bentler, P.M.; Chou, C.-P. Practical Issues in Structural Modeling. *Sociol. Methods Res.* **1987**, *16*, 78–117. [[CrossRef](#)]
73. Nunnally, J.C. *Psychometric Theory*, 2nd ed.; McGraw-Hill: New York, NY, USA, 1967.



74. Hu, L.; Bentler, P.M. Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives. *Struct. Equ. Model. A Multidiscip. J.* **1999**, *6*, 1–55. [\[CrossRef\]](#)
75. Sharma, S.; Mukherjee, S.; Kumar, A.; Dillon, W.R. A Simulation Study to Investigate the Use of Cutoff Values for Assessing Model Fit in Covariance Structure Models. *J. Bus. Res.* **2005**, *58*, 935–943. [\[CrossRef\]](#)
76. Marsh, H.W.; Hau, K.-T.; Wen, Z. In Search of Golden Rules: Comment on Hypothesis-Testing Approaches to Setting Cutoff Values for Fit Indexes and Dangers in Overgeneralizing Hu and Bentler's (1999) Findings. *Struct. Equ. Model. A Multidiscip. J.* **2004**, *11*, 320–341. [\[CrossRef\]](#)
77. Huppert, J.D.; Walther, M.R.; Hajcak, G.; Yadin, E.; Foa, E.B.; Simpson, H.B.; Liebowitz, M.R. The OCI-R: Validation of the Subscales in a Clinical Sample. *J. Anxiety Disord.* **2007**, *21*, 394–406. [\[CrossRef\]](#)
78. Sica, C.; Ghisi, M.; Altoè, G.; Chiri, L.R.; Franceschini, S.; Coradeschi, D.; Melli, G. The Italian Version of the Obsessive Compulsive Inventory: Its Psychometric Properties on Community and Clinical Samples. *J. Anxiety Disord.* **2009**, *23*, 204–211. [\[CrossRef\]](#)
79. Fullana, M.A.; Tortella-Feliu, M.; Caseras, X.; Andión, Ó.; Torrubia, R.; Mataix-Cols, D. Psychometric Properties of the Spanish Version of the Obsessive–Compulsive Inventory—Revised in a Non-Clinical Sample. *J. Anxiety Disord.* **2005**, *19*, 893–903. [\[CrossRef\]](#)
80. Aydin, A.; Boysan, M.; Kalafat, T.; Selvi, Y.; Beşiroğlu, L.; Kagan, M. Validation of the Turkish Version of the Obsessive-Compulsive Inventory-Revised (OCI-R) in Clinical and Non-Clinical Samples. *Nöro Psikiyatri Arşivi* **2014**, *51*, 15–22. [\[CrossRef\]](#) [\[PubMed\]](#)
81. Summerfeldt, L.J. Treating Incompleteness, Ordering, and Arranging Concerns. In *Psychological Treatment of Obsessive-Compulsive Disorder: Fundamentals and Beyond*; Antony, M.M., Purdon, C., Summerfeldt, L.J., Eds.; American Psychological Association: Washington, DC, USA, 2007; pp. 187–207. [\[CrossRef\]](#)
82. Cervin, M.; Miguel, E.C.; Güler, A.S.; Ferrão, Y.A.; Erdoğan, A.B.; Lazaro, L.; Gökçe, S.; Geller, D.A.; Yulaf, Y.; Başgöl, Ş.S.; et al. Towards a Definitive Symptom Structure of Obsessive–compulsive Disorder: A Factor and Network Analysis of 87 Distinct Symptoms in 1366 Individuals. *Psychol. Med.* **2021**, *52*, 3267–3279. [\[CrossRef\]](#)
83. Mataix-Cols, D.; Fernández de la Cruz, L. Hoarding Disorder Has Finally Arrived, but Many Challenges Lie Ahead. *World Psychiatry* **2018**, *17*, 224–225. [\[CrossRef\]](#) [\[PubMed\]](#)
84. Cheria, A.E.; Frost, R.O. Treating Compulsive Hoarding. In *Psychological Treatment of Obsessive-Compulsive Disorder: Fundamentals and Beyond*; Antony, M.M., Purdon, C., Summerfeldt, L.J., Eds.; American Psychological Association: Washington, DC, USA, 2007; pp. 231–249. [\[CrossRef\]](#)
85. Denys, D.; de Geus, F.; van Megen, H.J.G.M.; Westenberg, H.G.M. Use of Factor Analysis to Detect Potential Phenotypes in Obsessive-Compulsive Disorder. *Psychiatry Res.* **2004**, *128*, 273–280. [\[CrossRef\]](#)
86. Chen, J.T.-H.; Lovibond, P.F. Intolerance of Uncertainty Is Associated with Increased Threat Appraisal and Negative Affect under Ambiguity but Not Uncertainty. *Behav. Ther.* **2016**, *47*, 42–53. [\[CrossRef\]](#) [\[PubMed\]](#)
87. Clark, D.A. Focus on “Cognition” in Cognitive Behavior Therapy for OCD: Is It Really Necessary? *Cogn. Behav. Ther.* **2005**, *34*, 131–139. [\[CrossRef\]](#)
88. Leckman, J.F.; Mataix-Cols, D.; Rosario-Campos, M.C.D. Symptom Dimensions in OCD: Developmental and Evolutionary Perspectives. In *Concepts and Controversies in Obsessive-Compulsive Disorder*; Abramowitz, J.S., Houts, A.C., Eds.; Springer: Boston, MA, USA, 2005; pp. 3–25.
89. Taylor, S.; McKay, D.; Crowe, K.B.; Abramowitz, J.S.; Conelea, C.A.; Calamari, J.E.; Sica, C. The Sense of Incompleteness as a Motivator of Obsessive-Compulsive Symptoms: An Empirical Analysis of Concepts and Correlates. *Behav. Ther.* **2014**, *45*, 254–262. [\[CrossRef\]](#)
90. Radomsky, A.S.; Rachman, S. Symmetry, Ordering and Arranging Compulsive Behaviour. *Behav. Res. Ther.* **2004**, *42*, 893–913. [\[CrossRef\]](#)
91. Lee, S.R.; Wu, K.D. Feelings of Incompleteness Explain Symptoms of OCD and OCPD Beyond Harm Avoidance. *J. Obs.-Compuls. Relat. Disord.* **2019**, *21*, 151–157. [\[CrossRef\]](#)
92. Ólafsson, R.P.; Emmelkamp, P.M.; Ólason, D.; Kristjánsson, Á. Disgust and Contamination Concerns: The Mediating Role of Harm Avoidance and Incompleteness. *Int. J. Cogn. Ther.* **2020**, *13*, 251–270. [\[CrossRef\]](#)
93. Fornés-Romero, G.; Belloch, A. Induced Not Just Right and Incompleteness Experiences in OCD Patients and Non-Clinical Individuals: An in&nbsp;Vivo Study. *J. Behav. Ther. Exp. Psychiatry* **2017**, *57*, 103–112. [\[CrossRef\]](#)
94. Schreck, M.; Georgiadis, C.; Garcia, A.; Benito, K.; Case, B.; Herren, J.; Walther, M.; Freeman, J. Core Motivations of Childhood Obsessive-Compulsive Disorder: The Role of Harm Avoidance and Incompleteness. *Child Psychiatry Hum. Dev.* **2020**, *52*, 957–965. [\[CrossRef\]](#)
95. Salkovskis, P.M.; McGuire, J. Cognitive-Behavioural Theory of OCD. In *Obsessive-Compulsive Disorder: Theory, Research and Treatment*; Menzies, R.G., De Silva, P., Eds.; Wiley: Hoboken, NJ, USA, 2003; pp. 59–78.
96. Tolin, D.F.; Abramowitz, J.S.; Kozak, M.J.; Foa, E.B. Fixity of Belief, Perceptual Aberration, and Magical Ideation in Obsessive–Compulsive Disorder. *J. Anxiety Disord.* **2001**, *15*, 501–510. [\[CrossRef\]](#)
97. Calamari, J.E.; Cohen, R.J.; Rector, N.A.; Szacun-Shimizu, K.; Riemann, B.C.; Norberg, M.M. Dysfunctional Belief-Based Obsessive-Compulsive Disorder Subgroups. *Behav. Res. Ther.* **2006**, *44*, 1347–1360. [\[CrossRef\]](#)
98. Taylor, S.; Abramowitz, J.S.; McKay, D.; Calamari, J.E.; Sookman, D.; Kyrios, M.; Wilhelm, S.; Carmin, C. Do Dysfunctional Beliefs Play a Role in All Types of Obsessive–Compulsive Disorder? *J. Anxiety Disord.* **2006**, *20*, 85–97. [\[CrossRef\]](#) [\[PubMed\]](#)

99. Schwartz, R.A. Treating Incompleteness in Obsessive-Compulsive Disorder: A Meta-Analytic Review. *J. Obs.-Compuls. Relat. Disord.* **2018**, *19*, 50–60. [[CrossRef](#)]
100. Sperling, J. The Role of Intolerance of Uncertainty in Treatment for Pediatric Anxiety Disorders and Obsessive-Compulsive Disorder. *Evid.-Based Pract. Child Adolesc. Ment. Health* **2022**, *8*, 429–438. [[CrossRef](#)]

**Disclaimer/Publisher’s Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.