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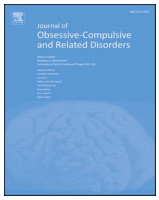

Four questions for clarity: A first investigation of the German version of the OCI-4 as an ultra-brief screening tool for Obsessive-Compulsive Disorder

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ABSTRACT

Background: Obsessive-Compulsive Disorder (OCD) is a prevalent and debilitating condition that is frequently under- or misdiagnosed in clinical practice, leading to significant delays between symptom onset and accurate diagnosis. To improve the diagnostic process for individuals with OCD, there is an urgent need for screening instruments that are both syndromally valid and reliable. Accordingly, the current study aims to evaluate the psychometric properties of the German version of the ultra-brief, four-item Obsessive-Compulsive Inventory (OCI-4).
Methods: The psychometric properties of the OCI-4 were investigated in a German-speaking sample composed of 102 participants with OCD, 69 participants with an anxiety-related disorder, and 248 non-clinical individuals.
Results: The OCI-4 showed good test-retest reliability, moderate-to-good construct validity, and good-to-excellent screening accuracy.
Conclusions: The results support that the German version of the OCI-4 is a valid and reliable screening tool for OCD symptoms with good-to-excellent psychometric properties. The OCI-4 could be established as a screening tool in various settings to identify those with likely OCD.

1. Introduction

Obsessive-Compulsive Disorder (OCD) is a common psychological disorder, affecting 2–3 % of individuals throughout their life-time (Ruscio et al., 2010), causing substantial impairment in daily functioning and quality of life (Pozza et al., 2018). Notwithstanding these severe consequences, patients presenting with OCD symptoms are frequently under- or misdiagnosed. A study in German outpatients showed that 70 % of OCD patients are misdiagnosed in psychiatric practices (Wahl et al., 2010). Furthermore, even when diagnosed, some reports indicate that it may take more than 12 years from the onset of first OCD symptoms to the diagnosis of OCD (Ziegler et al., 2021). Considering that individuals with a prolonged delay between symptom onset and OCD diagnosis exhibit more severe symptoms and more functional impairments (Ziegler et al., 2021), there is an urgent need to reduce the duration between onset and diagnosis by identifying the presence of OCD as early as possible.

As patients with OCD often present at primary care institutions, a screening for OCD symptoms at this early stage would be beneficial for correct referral, increasing the potential of an early diagnosis. However,

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the length and complexity in administration and scoring of current tools for assessing OCD symptoms pose an obstacle to the widespread assessment of the disorder, including in non-specialised primary care settings (Blakey & Abramowitz, 2018). Accordingly, there is a need for a short and easy-to-administer empirically developed tool to assess OCD symptoms in a wide range of routine clinical care settings.

In the empirical development of screening tools, it is critical to address the heterogeneity of OCD symptoms and frequently overlapping symptom dimensions (Mataix-Cols et al., 2005). To capture the different symptom dimensions, the screening tool should be syndromally valid as well as reliable. Specifically, the tool must accurately identify OCD symptoms in alignment with the latest diagnostic criteria and symptom patterns, while effectively distinguishing individuals likely to have OCD from those who do not. Two screening tools are already available in German: the Dimensional Obsessive-Compulsive Scale - Short Form (DOCS-SF; Kühne et al., 2021a) and the Zohar-Fineberg Obsessive--Compulsive Screen (ZF-OCS; Kühne et al., 2021b). The DOCS-SF assesses which of the four symptom domains (contamination, responsibility, ordering, and unacceptable/taboo thoughts) is perceived as most distressing, and evaluates the severity of symptoms in terms of time spent, avoidance behaviors, distress, interference with daily life, and difficulty resisting symptoms in the respective domain. While it effectively screens for general distress associated with OCD symptoms, the DOCS-SF does not provide detailed information on the severity of each symptom domain. The ZF-OCS identifies the presence of symptoms across five domains (cleanliness, control, rumination, impairment in daily life, and order/symmetry) using "yes/no" questions. However, it does not assess the severity of these symptoms per domain. In terms of psychometric properties, both instruments demonstrate good test-retest reliability and construct validity. However, their validation was conducted exclusively on a German-speaking, non-clinical sample predominantly composed of students. As a result, the sensitivity and specificity of the DOCS-SF and ZF-OCS, which are essential for distinguishing individuals with likely OCD from those without, remain undetermined.

An alternative ultra-brief screening tool for assessing symptom severity across dimensions was recently introduced in English by Abramovitch et al. (2021a). The four-item Obsessive-Compulsive Inventory (OCI-4), a condensed version of the syndromally valid OCI-12 (Abramovitch et al., 2021b; German version: Müller et al., 2025), evaluates the most common symptom dimensions (i.e., washing, checking, ordering, and obsessing) with a single item per dimension. The OCI-4 demonstrated good-to-excellent psychometric properties in its initial validation (Abramovitch et al., 2021a). However, its psychometric properties have so far not been established in non-English-speaking populations. Given its potential value for routine clinical care in Germany, the current study investigates the psychometric properties (i.e., test-retest reliability, construct validity, and screening accuracy) of the German version of the OCI-4. To achieve this, we examined the four corresponding items of the German version of the OCI-12 (Müller et al., 2025)in clinical and non-clinical samples recruited as part of the OCI-12 validation study.

2. Methods

2.1. Participants

Recruitment took place between April 2022 and July 2024. Participants with a primary diagnosis of OCD and anxiety-related disorders (ARD) were recruited through cooperating clinics. Participants with OCD were also recruited via another project at the LMU Munich, in which the questionnaires of the current study were entailed in a larger online survey. Non-clinical control (NCC) participants were recruited via the German online panel PsyWeb (https://psyweb.uni-muenster.de/). Participants of the clinical groups (OCD, ARD) were compensated with 10€ per hour (for those recruited within the other project) or with a 10€ voucher at the end of the online survey (for those recruited via cooperating clinics). Participants in the NCC group received feedback on their OCD symptoms as assessed by the Dimensional Obsessive-Compulsive Scale (DOCS; Fink-Lamotte et al., 2021) upon request at the end of the survey, in accordance with the standard procedure for participants recruited via the online platform PsyWeb. General inclusion criteria were: a minimum age of 18 years, no history of mania or psychotic disorders, and no acute suicidality. A description of group-specific inclusion criteria is provided below. Dedicated questions and questionnaires in the online survey were used to check for in- and exclusion criteria. The total sample consists of $N = 419$ participants that met the inclusion criteria – as assessed in the online survey – and completed the study. The dataset was also used for the validation of the German version of the OCI-12 (Müller et al., 2025).

2.1.1. Clinical samples

Participants in the OCD/ARD sample were included if they received a primary diagnosis of OCD/ARD within the past six months, based on DSM-5 (American Psychiatric Association, 2013) or ICD-10 (World Health Organization, 2019) criteria, or if they underwent psychotherapy due to OCD/ARD during this period. The diagnosis was given within the past six months by healthcare providers (for clinic recruits; before enrolment in the study and assessed with dedicated questions in the online survey) or with a structured interview by a trained interviewer (MINI-DIPS; Margraf & Cwik, 2017; for project recruits; at the beginning of the project).

OCD participants were included with a Yale-Brown Obsessive-Compulsive Scale (Y-BOCS; Hand & Büttner-Westphal, 1991) total score >12 or a subscale score ≥8 on for obsessions or compulsions, indicating clinically relevant OCD symptoms (see also Külz et al., 2014, 2019). The Y-BOCS was administered as a self-rating measure (Y-BOCS-SR; Baer, 1993) to $n = 64$ participants recruited through cooperating clinics. Additionally, $n = 38$ participants completed the interview version of the Y-BOCS (Hand & Büttner-Westphal, 1991) as part of another project at the LMU Munich. As the cooperating clinics were located across Germany, we decided to conduct the Y-BOCS-SR instead of a Y-BOCS interview to allow assessor-independent assessment of OCD symptoms. The Y-BOCS interview was conducted by a single assessor (doctoral student in clinical psychology) who had been trained and was supervised by a licensed psychotherapist experienced with OCD. This approach aimed to balance methodological rigor with practical considerations related to recruitment and data collection. Furthermore, the method of diagnosis (i.e., healthcare provider or structured interview) did not yield to significant differences in the OCD-related measures: $\text{OCI-4}_{\text{structured diagnosis}}$: $M = 8.11$, $SD = 2.94$; $\text{OCI-4}_{\text{diagnosis via healthcare providers}}$: $M = 7.64$, $SD = 3.61$; $t\,(90.38) = -.71$, $p = .48$; $\text{Y-BOCS}_{\text{structured diagnosis}}$: $M = 22.29$, $SD = 6.44$; $\text{Y-BOCS-SR}_{\text{diagnosis via healthcare providers}}$: $M = 22.05$, $SD = 5.91$; $t\,(72.61) = -.19$, $p = .85$; $\text{DOCS}_{\text{structured diagnosis}}$: $M = 28.74$, $SD = 10.42$; $\text{DOCS}_{\text{diagnosis via healthcare providers}}$: $M = 29.67$, $SD = 13.78$; $t\,(94.11) = .39$, $p = .70$.

The final sample included $n = 102$ participants with an OCD diagnosis. Y-BOCS scores represented moderate symptoms on average ($M = 22.14$, $SD = 6.08$), with $M = 10.88$ ($SD = 3.89$) on the obsession subscale and $M = 11.25$ ($SD = 3.39$) on the compulsion subscale. Participants of the OCD sample showed one or more of the following comorbid disorders: 45.10 % ($n = 46$) had a comorbid depressive disorder, 7.84 % ($n = 8$) a comorbid eating disorder, 30.39 % ($n = 31$) a comorbid anxiety disorder and 15.69 % ($n = 16$) another comorbid condition.

For participants with ARD, a lifetime diagnosis of OCD was defined as an exclusion criterion, that was assessed via a question in the online survey for clinic recruits ($n = 43$) and with a structured interview (MINI-DIPS; Margraf & Cwik, 2017) for project recruits ($n = 26$). In total, $n = 69$ ARD participants fulfilled the inclusion criteria and completed the assessment. Participants with ARD could present with one or more anxiety-related disorder, with the following distribution observed in the current sample: 28.99 % ($n = 20$) social anxiety disorder, 13.04 % ($n = 9$) generalised anxiety disorder, 31.88 % ($n = 22$) panic disorder, 5.8 %

(n = 4) agoraphobia, 10.14 % (n = 7) post-traumatic stress disorder, 42.03 % (n = 29) specific phobia. Of the sample of participants with ARD, 31.88 % (n = 22) had a comorbid depressive disorder, 4.35 % (n = 3) a comorbid eating disorder, 1.15 % (n = 1) another comorbid condition. Note that participants could present with more than one comorbid disorder.

2.1.2. Non-clinical control (NCC) sample

When starting the online survey, non-clinical participants recruited via the German online panel PsyWeb were screened for major psychological disorders with the simple version of the Web Screening Questionnaire (WSQ; Donker et al., 2009) and excluded if any score was beyond the defined cut-off criteria. Of those who gave informed consent to participate in the study and publication of their data (n = 906), n = 383 completed the screening questions and fulfilled the inclusion criteria. A total of n = 248 participants completed the first assessment (T_1), whereof n = 163 participants also completed the second assessment (T_2) and were eligible for the test-retest analyses. Sample characteristics are presented in Supplement A (Table A1).

2.2. Measures

2.2.1. 12-/4-Item Obsessive-Compulsive Inventory (OCI-4)

The German version of the OCI-12 (Müller et al., 2025) was administered, from which the four items pertaining to the OCI-4 (Abramovitch et al., 2021a) were extracted. This 12-item self-report questionnaire measures OCD symptoms and associated distress on a five-point Likert scale [ranging from 0 (not at all) to 4 (extremely)]. Each symptom dimension (i.e., checking, ordering, washing, obsessing) is assessed by three items. For the OCI-4, each dimension is covered by one item: "I get upset if objects are not arranged properly." for the ordering subscale, "I repeatedly check doors, windows, drawers, etc." for the checking subscale, "I sometimes have to wash or clean myself simply because I feel contaminated." for the washing subscale, and "I frequently get nasty thoughts and have difficulty in getting rid of them." for the obsessing subscale. The German wording of each item of the OCI-4 and the associated subscale are displayed in Supplement B (Table B1). The psychometric properties will be elaborated below.

2.2.2. Yale-Brown Obsessive-Compulsive Scale (Y-BOCS)

The Y-BOCS was administered as interview (German version: Hand & Büttner-Westphal, 1991) or as self-report (Y-BOCS-SR; German version: Baer, 1993). The Y-BOCS interview was conducted by a single assessor, a doctoral student in clinical psychology, who had received training and supervision from a licensed psychotherapist with expertise in OCD. The Y-BOCS severity scale included ten items that assess the severity of obsessions (items 1 to 5) and compulsions (items 6 to 10) over the past week. Every item is rated on a five-point scale (0–4) regarding the time spent on symptoms, the interference they cause, distress they induce, the effort of resistance, and the degree of control over them. The subscale sum-scores ($\text{Y-BOCS}_{\text{Obsessions}}$ and $\text{Y-BOCS}_{\text{Compulsions}}$) range from 0 to 20 and the $\text{Y-BOCS}_{\text{Total}}$ score ranges from 0 to 40, where higher scores correspond to higher symptom severity. While previous studies proposed that the two versions can be used interchangeably (Steketee et al., 1996), more recent investigations showed that the total scores produced by the clinician administered version are slightly higher (Federici et al., 2010; Hauschildt et al., 2019). However, in the current study, the Y-BOCS total scores did not differ significantly between the two administration modalities (i.e., interview completed by n = 38 project recruits and self-rating completed by n = 64 clinic recruits; Y-BOCS: M = 22.29, SD = 6.44; Y-BOCS-SR: M = 22.05, SD = 5.91; t (72.61) = −.19, p = .85. Moreover, the Y-BOCS-SR (α = .83, ω = .81), the Y-BOCS as interview form (α = .87, ω = .88), and the overall Y-BOCS (containing both assessment forms; used for analyses; α = .85, ω = .84) evidenced good internal consistency.

2.2.3. Dimensional Obsessive–Compulsive Scale (DOCS)

The DOCS (German version: Fink-Lamotte et al., 2021) assesses four OCD dimensions (i.e., contamination, responsibility for harm and mistakes, symmetry, and unacceptable/taboo thoughts) that are used to assess the OCD severity on throughout the past month. Each dimension contains five items assessing the amount of time that obsessions and compulsions take up, the potential avoidance behaviours, the level of distress associated with the OCD symptoms, the functional interference of obsessions/compulsions, and difficulties associated with disregarding obsessions or refraining from exerting compulsions. Items are rated on a five-point scale (0–4), so that each subscale ranges from 0 to 20 and the total score ranges from 0 to 80, with higher scores being indicative of higher symptom severity. The four-factor structure was supported and the German version of the DOCS showed good convergent and moderate discriminant validity (Fink-Lamotte et al., 2021). In the current study, the German version of the DOCS dimensions and the DOCS total score showed acceptable to excellent internal consistency (Cronbach's αs: α_{OCD} = .87, α_{ARD} = .92, α_{NCC} = .77 and McDonald's ωs: ω_{OCD} = .72, ω_{ARD} = .92, ω_{NCC} = .77).

2.2.4. Anxiety Sensitivity Index-3 (ASI-3)

The Anxiety Sensitivity Index-3 (ASI-3; German version: Kemper et al., 2011) is an 18-item self-report assessing anxiety sensitivity. Each item is rated on a five-point Likert scale [0 (very little) to 4 (very much)], with higher scores corresponding to higher anxiety sensitivity. The German version of the ASI-3 showed moderate to good construct validity (Kemper et al., 2011) and, in the current study, good to excellent internal consistency (Cronbach's αs: α_{OCD} = .87, α_{ARD} = .92, α_{NCC} = .89 and McDonald's ωs: ω_{OCD} = .87, ω_{ARD} = .92, ω_{NCC} = .89).

2.2.5. Penn State Worry Questionnaire (PSWQ)

The Penn State Worry Questionnaire (PSWQ; German version: Glöckner-Rist & Rist, 2014) contains 16 item that assess excessive and unrealistic worry. Each item is rated on a five-point Likert scale [1 (not at all typical of me) to 5 (very typical of me)], with higher scores indicating higher symptom severity. The German version of the PSWQ showed good construct validity and test-retest reliability (Glöckner-Rist & Rist, 2014), and, in the current study, excellent internal consistency (Cronbach's αs: α_{OCD} = .93, α_{ARD} = .95, α_{NCC} = .92 and McDonald's ωs: ω_{OCD} = .93, ω_{ARD} = .96, ω_{NCC} = .91).

2.2.6. Patient Health Questionnaire-9 (PHQ-9)

The Patient Health Questionnaire (PHQ-9; German version: Löwe et al., 2002) contains nine items that assess the severity of depressive symptoms throughout the past two weeks. Each item is rated on a four-point scale [0 (not at all) to 3 (nearly every day)], with higher scores corresponding to higher symptom severity. The PHQ-9 shows good validity and sensitivity in previous studies (Löwe, Kroenke, et al., 2004; Löwe, Spitzer, et al., 2004). In the current study, the PHQ-9 showed acceptable to good internal consistency (Cronbach's αs: α_{OCD} = .83, α_{ARD} = .87, α_{NCC} = .73 and McDonald's ωs: ω_{OCD} = .83, ω_{ARD} = .88, ω_{NCC} = .75).

2.2.7. Web Screening Questionnaire (WSQ)

The adapted simple version of the WSQ (Donker et al., 2009) contains 13 items that screen for the most prevalent psychological disorders (i.e., mood, anxiety, and alcohol-related diseases) and acute suicidality. The original version of the WSQ has been validated and could appropriately screen for common mental disorders (Donker et al., 2009; Meuldijk et al., 2017).

2.3. Procedure

The study incorporated three groups (OCD, ARD, NCC). Individuals in the clinical samples (OCD and ARD) were assessed at a single timepoint (T_1). To investigate test-retest reliability, individuals in the NCC

sample were assessed at two timepoints (T_1 and T_2) with invitations being sent out via e-mail 14 days apart from each other. At the first timepoint (T_1), all questionnaires were administered. At the second timepoint (T_2), NCC participants were asked to complete the OCI-12 only, of which the four items of the OCI-4 were extracted for the current analyses.

All study materials were administered online via the secured survey software REDCap (Harris et al., 2009). Participants received a link to the online survey (through cooperating clinics for the OCD and ARD samples and via PsyWeb for the NCC sample). The study was approved by the institutional ethics committee of the LMU Munich (03_Mueller_b). All participants provided informed E-consent for data collection.

2.4. Analytic plan

All statistical analyses were performed in *R* Statistics (version 4.4.1; R Core Team, 2024). A *p*-value lower than .05 is considered significant.

2.4.1. Extract the OCI-4 from the OCI-12

In a first step, the four items of the OCI-4 were extracted from the OCI-12, which was administered at both T_1 and T_2. The selection of the items was based on the original English version of the OCI-4 (Abramovitch et al., 2021a).

2.4.2. Test-retest reliability

The test-retest reliability of the OCI-4 was investigated with correlation analyses between the two timepoints T_1 and T_2 in the NCC sample. Pearson's correlation coefficients were interpreted according to Cohen (1988; very small: $r \leq |.10|$; small $|.10| \leq r < |.30|$; moderate: $|.30| \leq r < |.5|$; large: $r \geq |.50|$). Further, a paired *t*-test was conducted to investigate potential significant differences in OCI-4 scores between T_1 and T_2. Moreover, the two-way mixed effect intraclass correlation coefficient (ICC) was calculated to determine test-retest reliability. The ICC was interpreted according to the criteria postulated in Koo and Li (2016; poor: ICC <.5, moderate: .5 ≤ ICC <.75; good: .75 ≤ ICC <.9, excellent: ICC ≥.90).

2.4.3. Construct validity

Correlation analyses were conducted to investigate the construct validity of the OCI-4. For convergent validity, correlation analyses between OCI-4, Y-BOCS, and DOCS were conducted. For discriminant validity, correlation analyses between OCI-4, ASI-3, PSWQ, and PHQ-9 were conducted.

2.4.4. Screening accuracy

By means of univariate (ANOVA) and multivariate analysis of variance (MANOVA), we investigated group differences on the OCI-4 total and its sub-scales. To investigate potential differences more precisely, we conducted post-hoc Tukey Honest Significant Difference (Tukey HSD).

To examine the potential of using the OCI-4 to distinguish individuals with a diagnosis of OCD from individuals without such a diagnosis (i.e., NCC and ARD), we conducted receiver operating characteristic (ROC) analyses. ROC analyses were conducted for the OCI-4 total score and for each subscale, to assess the potential of individual subscales as compared to the total score. The AUC was interpreted according to the criteria proposed by Carter et al. (2016; non-useful: AUC <.7; fair: .7 ≤ AUC ≤.79; good: .8 ≤ AUC ≤.89, excellent: .9 ≤ AUC ≤.99). Lastly, we calculate the Youden Index (J; Youden, 1950) to estimate a cut-off scores for distinguishing participants with OCD from those with ARD or NCC. The Youden Index provides a cut-off that maximises both sensitivity and specificity, thereby balancing false positives and false negatives (Youden, 1950). From a clinical perspective, this balance is crucial, considering the potential consequences: unnecessary diagnostic procedures and financial burden due to false positives, or delayed access to appropriate treatment, resulting in worse long-term outcomes due to false negatives.

3. Results

3.1. Test-retest reliability

Results of the test-retest analyses can be found in Table 1. According to *t*-tests, no significant changes over the test-retest interval were evident for the total score and each subscale of the OCI-4. The Pearson's correlation coefficients showed a strong positive correlation for OCI-4 total and a moderate (washing) to strong (checking, ordering, obsessing) correlation for the OCI-4 subscales. The test-retest reliability as assessed with a two-way mixed effect ICC demonstrated moderate (checking, ordering, washing) to good (obsessing) reliability for the subscales and moderate reliability for the OCI-4 total score (according to criteria of Koo & Li, 2016).

3.2. Discriminant and convergent validity

The correlations between the OCI-4 and OCD-related measures (i.e., Y-BOCS and DOCS) as well as measures of depression (PHQ-9), anxiety (ASI-3), and worry (PSWQ) are presented in Table 2. Again, OCI-4 scores and the Y-BOCS correlated only in moderate magnitude in the group of participants with OCD. Correlations between the OCI-4 and the DOCS as measure of OCD symptoms were high in participants with OCD and ARD, but only moderate in the NCC group. The associations with depressive symptoms, anxiety, and worry have been shown to be moderate in all groups.

3.3. Screening accuracy

3.3.1. Group differences

Descriptives and group differences of the OCI-4 total score and the four subscales can be found in Table 3. The total scores of the OCI-4 significantly differed between groups, as shown by a significant main effect of group in the univariate ANOVA; $F(2, 416) = 306.9$, $p < .001$, $\eta^2 = .60$. More specifically, the Tukey HSD test revealed that participants with OCD hat significantly higher OCI-4 scores as compared to participants with ARD and NCC. Furthermore, the ARD group also showed significantly higher OCI-4 scores than the NCC group.

When considering the OCI-4 subscales, a MANOVA analysis across the subscales showed a significant main effect of group across factors revealed a significant main effect; Pillai's Trace = .684, $F(8, 828) = 53.803$, $p < .001$, $\eta^2 = .34$. As for the OCI-4 total score, separate univariate analyses with post-hoc Tukey HSD tests revealed that participants with OCD had significantly higher scores on each subscale than the NCC group (all *p*'s < .001). Furthermore, OCD participants showed significantly higher scores on all subscales (all *p*'s < .001), except for ordering ($p = .606$), than participants with ARD.

3.3.2. Screening accuracy

The OCI-4 had a good accuracy in discriminating participants with OCD from participants with ARD (AUC = .81, 95 % CI = [.745; .874]; see Fig. 1A). Furthermore, ROC curves on each subscale were performed to investigate the accuracy of each dimension. The subscale ordering showed the lowest accuracy (AUC = .54), while the subscale obsessing could discriminate best between participants with OCD and ARD (AUC = .77; see Fig. 2A).

When discriminating participants with OCD from NCC's, the OCI-4 total score evidenced an excellent accuracy (AUC = .96, 95 % CI = [.941; .987]; see Fig. 1B). Again, the subscale ordering showed the lowest accuracy (AUC = .67), while the subscale obsessing evidenced the highest accuracy (AUC = .92). The OCI-4 total score evidenced the best accuracy for discriminating OCD participants from both, ARD and NCC (see Fig. 2B).

Table 1
Descriptives and test-retest measures of OCI-4.

OCI-4 Scales	T_1		T_2		*t*-Test		Pearson's Correlation		ICC	
	M	*SD*	*M*	*SD*	*t*	*p*	*r*	*p*	*F*	*ICC*
Checking	.13	.34	.17	.41	1.534	.127	.56	<.001	3.4	.71
Ordering	.98	.80	.93	.78	−.833	.406	.55	<.001	3.4	.71
Washing	.12	.38	.16	.43	1.928	.305	.37	<.001	2.2	.54
Obsessing	.27	.56	.30	.60	.780	.437	.62	<.001	4.3	.77
Total	1.50	1.26	1.56	1.34	.664	.508	.59	<.001	3.9	.74

Note. OCI-4 = 4-Item Obsessive-Compulsive Inventory, ICC = two-way mixed effect intraclass correlation coefficient. These measures were obtained in the sample of non-clinical controls (n = 163) only.

Table 2
Discriminant and convergent validity of the OCI-4.

Measure	OCD		ARD		NCC	
	n	*r*	*n*	*r*	*n*	*r*
OCD Symptoms (Convergent)						
Y-BOCS $_{Total}$	102	.41**	–	–	–	–
DOCS $_{Total}$	102	.67**	69	.62**	248	43**
Other Symptoms (Divergent)						
PHQ-9	102	.44**	69	.31**	248	39**
ASI-3	102	.49**	69	.33**	.248	32**
PSWQ[1]	101	.49**	65	.27*	237	42**

Note. OCD = Obsessive-Compulsive Disorder, ARD = Anxiety-Related Disorders, NCC = Non-Clinical Controls, OCI-4 = 4-Item Obsessive-Compulsive Inventory, Y-BOCS = Yale-Brown Obsessive-Compulsive Inventory, DOCS = Dimensional Obsessive-Compulsive Scale, PHQ-9 = Patient-Health Questionnaire-9, ASI-3 = Anxiety-Sensitivity Index-3, PSWQ = Penn-State Worry Questionnaire.
[1] Different sample size due to missing values in the dataset.
* indicates p < .05. ** indicates p < .01.

3.3.3. Optimal cut-off

The Youden Index (J = .47) for discriminating participants with OCD from participants with ARD indicated an optimal cut-off of the OCI-4 sum score of 6 or higher. This cut-off correctly classified 75.49 % of participants with OCD (i.e., sensitivity) and 71.01 % of participants with ARD (i.e., specificity). When discriminating participants with OCD from NCC's, the optimal cut-off according to the Youden Index (J = .85) was higher or equal to 4. This cut-off correctly classified 89.22 % of participants with OCD (i.e., sensitivity) and 95.56 % of NCC's (i.e., specificity).

4. Discussion

The current study aims to investigate the potential of the ultra-brief OCI-4 as a screening tool for OCD symptoms. To this end, we extracted the four items of the OCI-4 from the German version of the OCI-12 (Müller et al., 2025) and investigated its psychometric properties in the clinical and non-clinical samples recruited in the context of the validation of the OCI-12.

The reliability of the OCI-4 was assessed with test-retest analyses. The OCI-4 total score possesses moderate-to-good test-retest reliability according to correlation analyses and the ICC. Therefore, the overall reliability of the OCI-4 can be considered moderate-to-good and is comparable to the original English version. The internal consistency for the OCI-4 was not assessed for three main reasons: First, the four items were selected to assess the different symptom dimensions of OCD, so unidimensionality, a central assumption of tests for internal consistency (McNeish, 2018), was not expected. Second, OCD patients oftentimes present with a primary theme (i.e., elevated symptoms in one or two dimensions), leading to response patterns with high scores on one or two items while relatively low scores on the other items. Third, internal consistency coefficients (e.g., Cronbach's α, McDonald's omega) are affected by the number of items (Malkewitz et al., 2023; Tavakol & Dennick, 2011). With only four items, the internal consistency measures may therefore underestimate the reliability of the OCI-4.

When investigating the convergent validity, it is evident that the correlations between the DOCS and the OCI-4 are large, yet only moderate when considering the OCI-4 is correlated with the Y-BOCS. This relatively low correlation is, however, not surprising and has been shown in previous studies (see Abramovitch et al., 2021b; Aspvall et al., 2020). This may be related to the Y-BOCS being an idiographic measure of OCD symptom severity while the OCI-4 is considered nomothetic. Moreover, an exploratory correlation analysis hinted towards the *common method bias* (Podsakoff et al., 2003), as the correlation between the two self-reports, OCI-4 and Y-BOCS-SR, was higher (r = .48, p < .001) than the correlation between the OCI-4 and the Y-BOCS interview (r = .28, p = .089). As the correlation between the OCI-4 and the DOCS is large (according to criteria by Cohen, 1988), we assume that the moderate correlation with the Y-BOCS is rather a methodological/conceptual artefact and generally conclude that the OCI-4 possesses convergent validity. In terms of discriminant validity, moderate correlations between the OCI-4 and symptoms of depression, anxiety, and worry have been shown. Again, this highlights that the OCD symptoms assessed with this instrument may not be independent of other psychological symptoms. This aligns with findings from Sharma et al. (2021), who reported substantial comorbidity rates between OCD, depressive disorders, and anxiety disorders. Furthermore, OCD symptoms and those of anxiety disorders show substantial overlap across cognitive, behavioural, physiological, and emotional domains, which was also reflected in OCD's classification as an anxiety disorder in previous diagnostic frameworks (American Psychiatric Association, 2000). Overall, the German version of the OCI-4 demonstrates similar patterns

Table 3
Descriptive statistics by group for the OCI-4.

OCI-4 Scales	OCD n = 102				ARD n = 69				NCC n = 248			
	M	*SD*	*Mdn*	*IQR*	*M*	*SD*	*Mdn*	*IQR*	*M*	*SD*	*Mdn*	*IQR*
Checking	1.69	1.33	1	2	.64	.97	0	1	.13	.34	0	0
Ordering	1.67	1.2	1.5	2	1.52	1.22	1	1	.94	.78	1	1
Washing	2.09	1.58	2	3	.67	.87	0	1	.12	.39	0	0
Obsessing	2.37	1.27	3	2	1.12	1.08	1	2	.24	.51	0	0
Total	7.81	3.37	8	4	3.94	2.75	3	4	1.43	1.19	1	1

Note. The values for each subscale can range from 0 to 4. The possible range for the total score is 0 to 16. OCI-4 = 4-Item Obsessive-Compulsive Inventory, OCD = Obsessive-Compulsive Disorder, ARD = Anxiety-Related Disorders, NCC = Non-Clinical Controls, Mdn = Median, IQR = Interquartile Range.

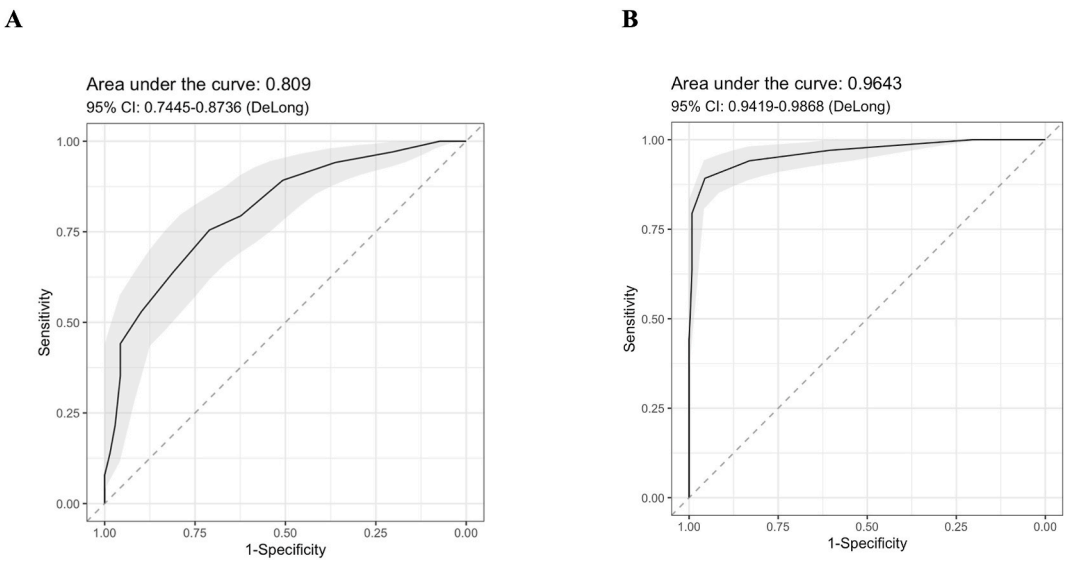

Fig. 1. Receiver Operating Characteristic Curves for the OCI-4 Total.
Note. A Receiver operating characteristic (ROC) curve comparing participants with Obsessive-Compulsive Disorder to participants with Anxiety-Related Disorders. **B** Receiver operating characteristic (ROC) curve comparing participants with Obsessive-Compulsive Disorder to Non-Clinical Controls.

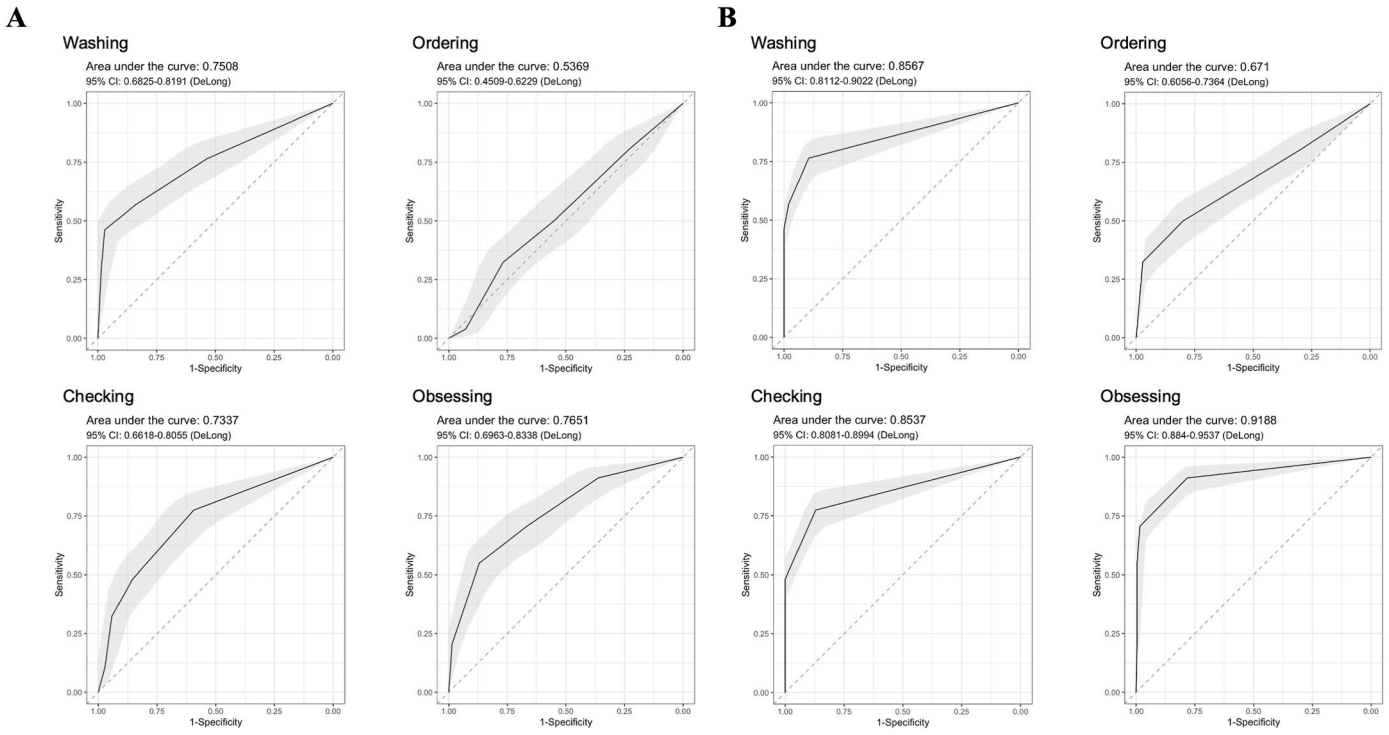

Fig. 2. Receiver Operating Characteristic Curves for Each of the OCI-4 Subscales.
A Receiver operating characteristic (ROC) curves for each of the OCI-4 subscales comparing participants with Obsessive-Compulsive Disorder to participants with Anxiety-Related Disorders. **B** Receiver operating characteristic (ROC) curves for each of the OCI-4 subscales comparing participants with Obsessive-Compulsive Disorder to Non-Clinical Controls.

of convergent and discriminant validity as the original English version.

When comparing OCI-4 total scores between the three groups, significant differences were found. Participants with OCD showed significantly higher scores as compared to both, participants with ARD and NCC. This is in line with analyses of the screening accuracy of the OCI-4, which can discriminate well between participants with OCD and participants with ARD and excellent between participants with OCD and NCC participants. The optimal cut-off for discriminating the two clinical groups is an OCI-4 total score of 6 or higher. When discriminating participants with OCD from NCC participants, a cut-off of 4 or higher is considered optimal. The screening accuracy of the German OCI-4 is comparable to the original English version ($AUC_{OCD\ vs.\ ARD} = .76$; $AUC_{OCD\ vs.\ NCC} = .86$; Abramovitch et al., 2021a). While these cut-offs can be used in research setting for a screening of participants for in- and exclusion criteria, they are also of relevance in clinical care. For instance, if a person presents in routine clinical care settings and scores beyond the defined cut-off, this person is at an increased likelihood of meeting the OCD diagnostic criteria, which should motivate the

clinician to administer further diagnostic questionnaires or interviews.

In summary, the OCI-4 is a promising concise screening tool that, if implemented in routine clinical care, could aid the diagnostic process and reduce the commonly observed under- and misdiagnoses in OCD. Of note, in this study the OCI-4 was extracted from the OCI-12 and needs evaluation as stand-alone screening tool. Furthermore, the OCI-4 should generally be considered a screening tool and not a diagnostic tool. Elevated scores on the OCI-4, especially if they exceed the proposed cut-offs, should be interpreted as a potential indicator of increased likelihood for OCD and should prompt further assessment to determine whether a clinical disorder is present and if treatment is warranted. Establishing the OCI-4 as standard screening tool could decrease the time from onset of first OCD symptoms to OCD diagnosis, which has been associated with more severe symptoms and worse daily functioning (Ziegler et al., 2021).

4.1. Limitations

The current study faces some limitations. Although participants were recruited within clinics, a structured interview for the diagnosis according to DSM-5 criteria was not always possible. Therefore, only a part of the participants included in the current analyses underwent a structured diagnostic interview. However, all patients were diagnosed by experienced clinicians with expertise in OCD making false diagnoses highly unlikely. Likewise, no structured interview was administered to the NCC population. The absence of any psychological disorder was assessed via the self-reported WSQ and dedicated questions only, which could potentially lead to inclusion of some participants with undiagnosed or unrecognised psychological disorders.

Additionally, around two-thirds of the OCD participants completed the Y-BOCS as a self-report measure, while the remaining third were assessed using the interview format of the Y-BOCS. Although previous research showed that these two versions show strong correlations and may be used interchangeably (Baer et al., 1993; Rosenfeld et al., 1992; Steketee et al., 1996), the weak correlation between the Y-BOCS interview and the OCI-4 hints towards differences between the two assessment modalities.

For the sake of ecological validity, we included participants with comorbid diagnoses. Although this gives us a closer representation of clinical reality, we acknowledge that comorbid symptoms may attenuate some of the reported measures, such as internal and discriminant validity.

Lastly, it is important to note that the four items of the OCI-4 were originally embedded in the OCI-12 and were only extracted during the data analysis phase. Consequently, the context in which respondents answered these items may be different compared to when the OCI-4 would be administered as a stand-alone questionnaire. To ensure that the OCI-4 functions effectively as an independent screening tool, a future study should administer the OCI-4 on its own and evaluate its psychometric properties. Furthermore, this study did not conduct a full item selection process based on the OCI-R but chose the items of the OCI-4 based on the items that were shown to be best suited within the original English version of the OCI-4 (Abramovitch et al., 2021a). Therefore, it is possible that a different set of four items might have been chosen due to cultural or linguistic differences. Moreover, since the same dataset was used to validate both the OCI-12 (Müller et al., 2025) and OCI-4, an essential next step is to evaluate the psychometric properties of the OCI-4 as a stand-alone measure in larger, more representative OCD samples. Future research should aim for a balanced representation of symptom dimensions, ensuring that the sample reflects the epidemiological distribution of OCD in the general population. Additionally, given that obsessive-compulsive symptoms are likely influenced by cultural factors (Nicolini et al., 2017), future research should not only examine cross-cultural differences in the expression of OCD symptoms, but also consider the OCI-4 as a valuable tool for systematically investigating these differences according to the psychometric properties and validated cut-off criteria across populations.

5. Conclusion

The German version of the OCI-4 presents a syndromally valid self-report measure for OCD screening with moderate-to-good reliability, good construct validity and good-to-excellent screening accuracy. Based on these results, the OCI-4 is a valuable screening tool that can rapidly screen for likely OCD in clinical and non-clinical populations. The validated cut-off scores of the OCI-4 can be utilised in routine clinical care to inform subsequent diagnostic procedures, helping to address the underdiagnosis and misdiagnosis frequently observed in OCD. Consequently, it has the potential to reduce the time required for patients to receive an accurate diagnosis and, accordingly, appropriate treatment. To enable a wide use of the OCI-4 as well as the more elaborate OCI-12, the German versions of both questionnaires, including the item numbering and scoring guidelines, are freely available under the CC BY-NC-ND 4.0 license on the Open Science Framework. The German version of the OCI-4 can also be found in Supplement C (Table C1).

Open science statement

Data, code, and selected materials are provided at the Open Science Framework.

CRediT authorship contribution statement

Celina L. Müller: Writing – original draft, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Lena Jelinek:** Writing – review & editing, Validation, Investigation, Conceptualization. **Jakob Fink-Lamotte:** Writing – review & editing, Validation, Investigation, Conceptualization. **Jakob Scheunemann:** Writing – review & editing, Investigation. **Dean McKay:** Writing – review & editing, Resources. **Jonathan S. Abramowitz:** Writing – review & editing, Resources. **Amitai Abramovitch:** Writing – review & editing, Validation, Resources. **Barbara Cludius:** Writing – review & editing, Validation, Supervision, Methodology, Investigation, Funding acquisition, Conceptualization.

Ethics statement

The study was approved by the institutional ethics committee of the Faculty of Psychology and Educational Sciences of the LMU Munich (03_Mueller_b).

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Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Barbara Cludius reports financial support was provided by German Research Foundation (Project-ID: 461724773). If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jocrd.2025.100953.

Data availability

The data is available on the Open Science Framework.

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