



Duration of daily life activities in persons with and without obsessive–compulsive disorder

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ABSTRACT

Persons with obsessive–compulsive disorder (OCD) are often impaired in their daily level of functioning due to their time-consuming obsessions and/or compulsions. To date, however, studies are lacking that quantify how much time persons with OCD actually spend on activities of daily living. Therefore, the current study assessed 13 daily life activities (in minutes) with a self-report questionnaire in 299 persons with OCD at admission to inpatient treatment and 300 age- and sex-matched persons without OCD. A majority of persons with OCD indicated that they experienced obsessions and/or compulsions when leaving (84%) and cleaning (70%) the apartment, grocery shopping (66%), changing clothes (66%), and showering with (62%) and without (63%) shampooing. Persons with OCD who experienced obsessions and/or compulsions during a given daily life activity—but not those who did not experience obsessions and/or compulsions during these activities—reported longer durations for performing 10 of the 13 activities than persons without OCD. For most activities, longer durations related weakly but significantly to higher OCD symptom severity. Results indicate that the duration of daily life activities seems to depend more on whether persons with OCD experience obsessions and/or compulsions during a specific activity and less on whether a person is diagnosed with OCD in general. Future studies may use other assessment methods that allow for tracking the duration in daily life in real time.

1. Introduction

Obsessive–compulsive disorder (OCD) is a relatively common mental disorder which affects approximately 2% of the general population (Murphy et al., 2010; Voderholzer et al., 2022). The condition is characterized by the occurrence of obsessions, compulsions, or both (American Psychiatric Association, 2013; World Health Organization, 1993). Obsessions are repetitive and persistent thoughts, images, or impulses that are intrusive and mostly perceived as unpleasant and disturbing. Compulsions are recurrent acts which are often performed to neutralize obsessions and, therefore, perceived as relieving (Abramowitz et al., 2009). As OCD is a symptomatically heterogeneous condition, these obsessions and/or compulsions can occur in various forms such as repeating words silently, ordering, or fear of behaving unacceptably (Heyman et al., 2006; World Health Organization, 1993). Onset of OCD is often gradual and—if adequate treatment is lacking—the course of the

disorder is often chronic (Abramowitz and Reuman, 2009; Skoog and Skoog, 1999).

An essential feature of OCD is that the obsessions and/or compulsions are time-consuming (American Psychiatric Association, 2013; Hoffmann and Hofmann, 2017, p. 42). As OCD is a heterogeneous condition, individual differences in the frequency and severity of symptoms do exist, and as such, time occupied by obsessions and/or compulsions varies across persons. Existing literature suggests that time occupied by symptoms is associated with lower quality of life and greater impairment in daily functioning in persons with OCD (Eisen et al., 2006; Macy et al., 2013; Meule and Voderholzer, 2020).

Although extensive literature suggests that OCD is associated with significant impairment in day-to-day functioning (Eisen et al., 2006; Sahoo et al., 2017; Stengler-Wenzke et al., 2006), limited research has explicitly examined how daily tasks unassociated with OCD symptomatology are impacted by the condition. In severe OCD presentations,

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symptoms may become so time consuming that individuals neglect to or are unable to engage in self-preservation activities, including eating and drinking (Brierley et al., 2021). Because of repetition and exactness often seen in the context of OCD, it is plausible to suggest that daily tasks, such as brushing teeth, washing hands, and/or cleaning the apartment, require more time for individuals with OCD relative to those without (Subramaniam et al., 2013). Additionally, there may be differences in the duration required for daily activities as a function of OCD symptom subgroups (i.e., contamination compared to taboo thought OCD presentations) and/or levels of OCD symptom severity.

Addressing this gap in literature may have implications for clinical practice. For example, quantifying the duration of daily life activities in persons with and without OCD may be of substantial benefit in helping persons with OCD achieve higher symptom insight as they often underestimate the duration of their daily life activities (Koch et al., 2023, p. 88; Voderholzer et al., 2022). Behavioral observation (i.e., measurement of the time required to perform a certain activity) and comparing results of this behavioral observation with reference values of persons without OCD can be used to demonstrate persons with OCD that the time they spend on daily life activities is excessive. This insight can then be used therapeutically by discussing with the patient how this time could alternatively be spent on other, more enjoyable activities. Enhancing symptom insight in persons with OCD is a crucial aspect contributing to favorable treatment outcomes as persons with OCD with low symptom insight are less likely to respond to first-line treatments such as cognitive-behavioral therapy with exposure and response prevention (Middleton and Hezel, 2019). In addition, investigating the time spent on certain daily life activities would provide reference values which persons with OCD and psychotherapists can use for therapy to delineate normal and clinically relevant durations of daily life activities. Thus, persons with OCD may use these reference values as a guide to learn how much time should be spent on daily life activities on average (Koch et al., 2023, p. 88). Finally, quantification of the duration of daily life activities in persons with OCD may help clinicians by identifying areas more or less impacted by OCD symptomatology and tailor exposure exercises accordingly to help reduce time spent on those activities.

Hence, the current study aimed to quantify the duration of daily life activities in persons with OCD and examine for which activities persons with OCD take longer than persons without OCD. For this purpose, adult persons with OCD receiving inpatient treatment and age- and sex-matched persons without OCD completed a self-report questionnaire that asked about the duration of 13 daily life activities. It was expected that persons with OCD would report longer durations of performing daily life activities compared to persons without OCD. In a second step, we examined whether general group differences would primarily be due to the subgroup of persons with OCD who reported to experience obsessions and/or compulsions during certain daily life activities. In persons with OCD, it was expected that those who reported to experience obsessions and/or compulsions for a given activity would take longer for performing those daily life activities compared to persons with OCD who reported to not experience obsessions and/or compulsions for the respective activities and persons without OCD. Finally, it was explored whether the duration of daily life activities was associated with general obsessive-compulsive symptom severity.

2. Method

2.1. Sample characteristics

In the current study, data of 299 adult persons with OCD who received inpatient treatment at the Schoen Clinic Roseneck (Prien am Chiemsee, Germany) between 2020 and 2022 and a control group of 300 adults without OCD who were recruited in October 2022 were analyzed. There were no other inclusion or exclusion criteria. The persons with OCD were admitted to the hospital in accordance with the recommendations of German guidelines for the treatment of OCD such as the lack

of outpatient treatment options or high symptom severity which hindered outpatient treatment (Voderholzer et al., 2022). In this group, age ranged between 18 and 70 years and about 60% were female (Table 1). Two-hundred and twenty-one persons with OCD (73.9%) had at least one comorbid mental disorder. The most common comorbid mental disorders were affective disorders ($n = 197$, 65.9%, ICD-10 code F3), anxiety disorders ($n = 65$, 21.7%, ICD-10 code F4), and eating disorders ($n = 18$, 6.0%, ICD-10 code F5). On average, persons with OCD had moderate OCD symptom severity according to the self-report version of the Y-BOCS (mean sum score of 25.14, $SD = 6.68$, Table 1; see recommendations by Cervin et al., 2022).

Similar to the persons with OCD, the age of persons without OCD ranged between 18 and 70 years and about 60% were female (Table 1). None of the persons in this group reported to have ever been diagnosed with any mental disorder or OCD in particular. Similarly, average self-report Y-BOCS scores were low (mean sum score of 6.40, $SD = 4.50$, Table 1; see recommendations by Cervin et al., 2022).

2.2. Materials, data handling, and ethical approval

The persons with OCD completed a self-made questionnaire assessing the duration of daily life activities as part of the routine diagnostic assessment at admission. At the Schoen Clinic Roseneck, data (e.g., demographics, clinical assessments as well as diagnoses, and self-report questionnaires) are de-identified and automatically transferred to a database for analysis, preserving anonymity. Persons without OCD were recruited via Bilendi which is a service provider for market research (<http://www.bilendi.de>) in a completely anonymized online panel survey. According to the guidelines by the ethics committee of the LMU Munich (Munich, Germany), both retrospective studies conducted on already available, anonymized data (i.e., data of persons with OCD used in the current study) and completely anonymized, prospective questionnaire studies (i.e., data of persons without OCD in the current study) are exempt from requiring ethics approval.

2.3. Measures

Demographic and clinical data. Information about age (in years),

Table 1

Descriptive and test statistics for sociodemographic and psychopathological variables in persons with and without obsessive-compulsive disorder (OCD).

Dependent variable	Persons with OCD	Persons without OCD	Test statistic	p	Effect size
Age (years)	$M = 33.87$ ($SD = 12.45$)	$M = 35.29$ ($SD = 11.98$)	$U = 40957.00$.066	$r_{rb} = -0.09$
Sex (female)	$n = 179$ (59.9%)	$n = 179$ (59.7%)	–	.513	$\phi = .002$
Obsessive-Compulsive Inventory-Revised	$M = 32.91$ ($SD = 12.61$)	$M = 15.37$ ($SD = 12.43$)	$U = 74913.00$	<.001	$r_{rb} = 0.68$
Yale-Brown Obsessive Compulsive Scale	$M = 25.14$ ($SD = 6.68$)	$M = 6.40$ ($SD = 4.50$)	$U = 87058.50$	<.001	$r_{rb} = 0.97$
Patient Health Questionnaire-9	$M = 12.80$ ($SD = 5.93$)	$M = 4.50$ ($SD = 4.43$)	$U = 73430.00$	<.001	$r_{rb} = 0.73$
Generalized Anxiety Disorder Scale-7	$M = 12.34$ ($SD = 4.82$)	$M = 3.10$ ($SD = 3.45$)	$U = 78775.50$	<.001	$r_{rb} = 0.86$

Notes. Effect size = matched-pairs rank biserial correlation coefficients for Mann-Whitney U test; phi coefficient for Fisher's exact test.

biological sex (male/female), and diagnoses of mental disorders were obtained from the clinical records. That is, diagnoses were established by an unstructured clinical interview by psychotherapists (i.e., specialized psychologists or physicians with psychotherapeutic training).

Questionnaire on the duration of daily life activities. A survey in the form of a self-report questionnaire was developed by the research team to assess the duration of daily life activities across 13 domains. These domains were identified following discussions regarding different daily life activities and possible response scales by the research team and input of subject matter experts. Care was taken to only select activities that all persons engage in on a daily or nearly daily basis. The preliminary set of questions involved 14 items but one item (shaving the face) was removed as it was disproportionately relevant to some, but not all persons. The following 13 daily life activities were chosen: leaving the apartment, handwashing, brushing teeth, urinating, changing clothes, performing a bank transfer, defecating, showering with and without shampooing, writing an email, eating a meal, grocery shopping, and cleaning the apartment. For each activity, persons with OCD were asked to indicate whether they experienced obsessions and/or compulsions when performing the activity by selecting yes or no. These questions were not used in the questionnaire for the persons without OCD as only persons were recruited without an OCD and, thus, it was expected that most persons would be unfamiliar with the concepts of obsessions and/or compulsions. Both persons with and without OCD were instructed to report the total amount of time spent performing the different tasks assessed. They were asked to round to the nearest whole integer (i.e., rounding down to 0 for a duration of <30 s, rounding up to 1 min for a duration of ≥ 30 s). This instruction was chosen because it was deemed unrealistic that persons can report on the duration of such activities to a precision exact to the second. Another reason was that it was aimed to avoid any reporting errors as a result of persons with and without OCD having to convert seconds to decimal numbers in minutes or vice versa.

Obsessive–Compulsive Inventory–Revised (OCI–R). The German version (Gönner et al., 2007) of the OCI–R (Foa et al., 2002) was used to assess obsessive–compulsive symptoms at admission. The OCI–R is an 18-item self-report questionnaire comprising six subscales: washing, checking, ordering, obsessing, hoarding, and neutralizing. Responses are recorded on a five-point scale which ranges from 0 = *not at all* to 4 = *extremely* and relates to the extent of distress experienced in the course of the past month due to OCD symptoms. Only the total score was used in the current analyses. Internal reliability coefficients were $\alpha = .85$ in the validation study of the German version (Gönner et al., 2007) and $\omega = .91$ in the current study. Convergent validity has been supported by medium-to-high correlations with other measures for obsessive–compulsive symptomatology and divergent validity has been supported by small correlations with measures for related but distinct constructs such as depression and anxiety (Gönner et al., 2007).

Yale–Brown Obsessive Compulsive Scale (Y–BOCS). The German self-report version (Schaible et al., 2001) of the Y–BOCS (Baer, 1991; Baer et al., 1993) was used to assess OCD severity at admission. The Y–BOCS is a 10-item self-report questionnaire with two subscales: obsessions and compulsions. Responses are recorded on a five-point scale ranging from 0 = *no symptoms* to 4 = *extreme symptoms*. Only the total score was used in the current analyses. Internal reliability coefficients ranged between $\alpha = .78$ – $.88$ in two validation studies (Federici et al., 2010; Rosenfeld et al., 1992; Steketee et al., 1996) and was $\omega = .93$ in the current study. Convergent validity has been supported by high correlations with other measures for obsessive–compulsive symptomatology and divergent validity has been supported by moderate correlations with measures for related but distinct constructs such as worry (Ólafsson et al., 2010; Rapp et al., 2016; Steketee et al., 1996).

Patient Health Questionnaire–9 (PHQ–9). The German version (Löwe et al., 2002) of the PHQ–9 (Spitzer et al., 1999) was used to assess depressive symptoms for testing whether the general psychopathology scores of persons without OCD were comparable to other non-clinical

samples. The PHQ–9 is a self-report questionnaire with 9 items and responses are recorded on a four-point scale ranging from 0 = *not at all* to 3 = *nearly every day*. Internal reliability coefficients were $\alpha = .89$ in a previous study (Kroenke et al., 2001) and $\omega = .92$ in the current study. Construct validity has been supported, for example, by negative associations with health-related quality of life (Kroenke et al., 2001).

Generalized Anxiety Questionnaire–7 (GAD–7). The German version (Löwe et al., 2008) of the GAD–7 (Spitzer et al., 2006) was used to assess anxiety symptoms for testing whether the general psychopathology scores of persons without OCD were comparable to other non-clinical samples. The GAD–7 is a self-report questionnaire comprising 7 items and responses are recorded on a four-point scale ranging from 0 = *not at all* to 3 = *nearly every day*. Internal reliability coefficients were $\alpha = .92$ in a previous study (Spitzer et al., 2006) and $\omega = .93$ in the current study. Convergent validity has been supported by high correlations with other measures for anxiety (Spitzer et al., 2006).

2.4. Data analyses

Data were analyzed with *R* version 4.2.1 (RCore Team, 2022), *RStudio* version 2022.07.1 (RStudio Team, 2022), *JASP* version 0.16.4.0 (JASP Team, 2022) and *SPSS* version 27.0 (SPSS, 2020). Non-parametric and robust techniques were used for all analyses as distributions of duration of daily life activities were right-skewed and contained outliers. To test whether groups were similar in age and sex but different in OCD-specific (OCI–R, Y–BOCS) and general (PHQ–9, GAD–7) psychopathological variables, persons with and without OCD were compared with Mann–Whitney U and Fisher’s exact test. To test whether groups differed in the duration of daily life activities, persons with and without OCD were compared with Mood’s median test using the *RVAideMemoire* package version 0.9-81-2 (Hervé and Hervé, 2020). In addition, persons with OCD were further divided into those with vs. without obsessions and/or compulsions when performing a given activity. To test whether these three groups (i.e., persons with OCD with obsessions and/or compulsions, persons with OCD without obsessions and/or compulsions, persons without OCD) differed in the duration of daily life activities, they were compared with Mood’s median test, followed by pairwise comparisons (again using Mood’s median test), if appropriate.

Associations between the duration of daily life activities and OCD symptom severity (OCI–R, Y–BOCS) were examined with robust percentage bend correlation coefficients with the *WRS2* package version 1.1–4 (Mair and Wilcox, 2020; Wilcox, 1994). In addition, it was tested whether the size and/or direction of these associations would be different in persons with OCD with obsessions and/or compulsions, persons with OCD without obsessions and/or compulsions, and persons without OCD. For this, robust linear regressions were run (separately for each activity and each OCD symptom severity measure) with the *robustbase* package version 0.95-0 (Maechler et al., 2022). Note that, as there were three groups, these needed to be dummy coded into two variables, each representing the contrast of one group compared to a reference group. When examining moderation effects involving such a multicategorical variable, this means that there are also two interaction terms for each dummy coded variable (Hayes and Montoya, 2017). Because of this, models without interaction terms were run that included scores of one symptom severity measure (OCI–R or Y–BOCS) and the two dummy coded variables as independent variables and duration of daily life activities as dependent variable. In a second step, an interaction *symptom severity measure* \times *group* was added and models were compared using *R*’s *anova* function, which, in this case, calculates a Wald-test to compare the two models. If the two models were significantly different (indicating that the association between duration of daily life activities and OCD symptom severity was different in the three groups), robust percentage bend correlation coefficients were calculated separately for each group.

As has been suggested by others, effects were considered significant at $p < .005$ because of the numerous inferential tests (Benjamin et al.,

2018). The R code and data which can be used to reproduce all Mood’s median tests, robust percentage bend correlation coefficients, and robust regression analyses are available at <https://osf.io/v37j8/>.

3. Results

Persons with and without OCD did not differ in age and sex. Yet, persons with OCD had higher OCI-R, Y-BOCS, PHQ-9, and GAD-7 scores than persons without OCD (Table 1). Persons with OCD reported significantly longer durations for brushing teeth, performing a bank transfer, showering with and without shampooing, and writing an email than persons without OCD (Table 2). A majority of persons with OCD indicated that they experienced obsessions and/or compulsions when leaving (84%) and cleaning (70%) the apartment, grocery shopping (66%), changing clothes (66%), and showering with (62%) and without (63%) shampooing (Table 3). Persons with OCD experiencing obsessions and/or compulsions when performing a given activity reported longer durations than persons without OCD for all activities except leaving the

Table 2
Descriptive and test statistics for the duration of daily life activities in persons with and without obsessive-compulsive disorder (OCD).

Activity (minutes)	Persons with OCD		Persons without OCD		Test statistics		
	Mdn	M	Mdn	M	χ^2	p	Effect size
Leaving apartment	5	12.46	5	10.32	2.90	.088	$r_{rb} = 0.03$ ($d = 0.09$)
Handwashing	1	4.02	1	5.22	5.69	.017	$r_{rb} = 0.05$ ($d = -0.03$)
Brushing teeth	3	4.37	3	3.68	10.09	.001	$r_{rb} = 0.09$ ($d = 0.12$)
Urinating	2	4.19	2	2.98	3.42	.064	$r_{rb} = 0.04$ ($d = 0.22$)
Changing clothes	5	6.48	4	5.90	1.40	.236	$r_{rb} = 0.02$ ($d = 0.04$)
Bank transfer	4	6.42	3	4.76	20.65	<.001	$r_{rb} = 0.18$ ($d = 0.12$)
Defecating	7	13.12	5	8.65	3.23	.072	$r_{rb} = 0.13$ ($d = 0.24$)
Showering without shampooing	10	17.94	7	9.60	45.32	<.001	$r_{rb} = 0.32$ ($d = 0.39$)
Showering with shampooing	15	23.77	10	13.53	29.53	<.001	$r_{rb} = 0.32$ ($d = 0.44$)
Writing email	5	7.22	3	4.74	17.05	<.001	$r_{rb} = 0.22$ ($d = 0.32$)
Eating meal	15	17.05	15	19.62	2.94	.087	$r_{rb} = 0.01$ ($d = -0.08$)
Grocery shopping	30	32.30	30	36.72	0.35	.556	$r_{rb} = -0.09$ ($d = -0.10$)
Cleaning apartment	85	131.34	60	87.13	1.50	.220	$r_{rb} = 0.07$ ($d = 0.38$)

Notes. Note that groups were compared using the median of the duration of daily life activities. Arithmetic means are reported here for transparency but readers should be aware that—in contrast to the median—these values are substantially biased by outliers. Effect size = Matched-pairs rank biserial correlation coefficient (Cohen’s *d* in parentheses).

apartment, grocery shopping, and cleaning the apartment (Table 3). They also reported longer durations than persons with OCD not experiencing obsessions and/or compulsions for all activities except cleaning the apartment (Table 3).

In the total sample, a longer duration was associated with higher OCD symptom severity with small effect sizes for the majority of daily life activities (Table 4). For leaving the apartment, the interaction between Y-BOCS and group ($\chi^2 = 11.63, p = .003$) was significant: the association between duration of leaving the apartment and OCD symptom severity was larger in persons with OCD experiencing obsessions and/or compulsions than in persons with OCD without obsessions and/or compulsions or persons without OCD (Table 4). For writing an email, the interactions between OCI-R and group ($\chi^2 = 12.41, p = .002$) as well as between Y-BOCS and group ($\chi^2 = 11.30, p = .004$) were significant: the association between duration of writing an email and OCD symptom severity was larger in persons with OCD experiencing obsessions and/or compulsions than in persons with OCD without obsessions and/or compulsions or persons without OCD (Table 4).

4. Discussion

4.1. Summary and interpretation of results

This is the first study assessing the duration of daily life activities in persons with OCD receiving inpatient treatment compared to persons without OCD. The present findings suggest that persons with OCD require more time for brushing teeth, effecting a bank transfer, showering with and without shampooing, and writing an email than persons without OCD. The duration for other daily life activities (leaving the apartment, handwashing, urinating, changing clothes, defecating, eating a meal, grocery shopping, and cleaning the apartment) did not significantly differ between groups. Longer durations for daily life activities in persons with OCD may be due to activities often being accompanied by constant doubts as to whether they have been carried out sufficiently (Samuels et al., 2017). Additionally, another reason for longer durations in daily life activities in persons with OCD may be not-just-right feelings resulting in persons with OCD either repeating the same brief action many times in a row or performing a comprehensive sequence of actions very slowly (Coles et al., 2005; Coles and Ravid, 2016).

Yet, it appears that it is crucial to also differentiate whether persons with OCD experience obsessive thoughts or the urge to perform compulsions during a given activity. For example, a majority of persons with OCD indicated that they experienced obsessions and/or compulsions when leaving the apartment, changing clothes, showering with and without shampooing, grocery shopping and cleaning the apartment. In contrast, only approximately one third of persons with OCD reported to experience obsessions and/or compulsions when eating a meal or when brushing teeth. When differentiating between three groups (i.e., persons without OCD, persons who indicated to not experience obsessions and/or compulsions when performing a given activity, and persons who indicated to experience obsessions and/or compulsions when performing a given activity), it turned out that those with obsessions and/or compulsions—reported longer durations for almost all activities than persons without OCD. Possible reasons for longer durations besides the occurrence of obsessions and/or compulsions might be that the durations are also influenced by factors other than OCD symptomatology, such as the amount of food required when grocery shopping, the size of the apartment when cleaning it, and the individual definition of when leaving the apartment begins and ends.

For most activities, a longer duration related weakly but significantly to higher OCD symptom severity. These associations were mostly similar across groups, except that associations between OCD symptomatology and durations of leaving the apartment and writing an email were stronger in persons with OCD with obsessions and/or compulsions. The

Table 3

Descriptive and test statistics for the duration of daily life activities in persons without obsessive–compulsive disorder and persons with obsessive–compulsive disorder as a function of whether they experienced obsessions and/or compulsions or not when performing a given activity.

Activity (minutes)	With obsessions and/or compulsions			Without obsessions and/or compulsions			Persons without obsessive–compulsive disorder			Test statistics		
	n (%)	Mdn	M	n (%)	Mdn	M	n (%)	Mdn	M	χ^2	p	Effect size
Leaving the apartment	250 (83.6%)	5 ^a	13.44	49 (16.4%)	2 ^b	7.45	300 (100%)	5 ^a	10.32	18.24	<.001	$\eta^2 = 0.04$
Handwashing	179 (59.9%)	2 ^a	5.90	120 (40.1%)	1 ^b	1.23	300 (100%)	1 ^c	5.22	72.74	<.001	$\eta^2 = 0.19$
Brushing teeth	115 (38.5%)	5 ^a	6.55	184 (61.5%)	3 ^b	3.01	300 (100%)	3 ^b	3.68	80.13	<.001	$\eta^2 = 0.15$
Urinating	140 (46.8%)	4 ^a	6.63	159 (53.2%)	2 ^b	2.05	300 (100%)	2 ^c	2.98	70.70	<.001	$\eta^2 = 0.14$
Changing clothes	196 (65.6%)	5 ^a	8.31	103 (34.4%)	2 ^b	2.99	300 (100%)	4 ^c	5.90	58.70	<.001	$\eta^2 = 0.12$
Bank transfer	151 (50.5%)	7 ^a	9.81	148 (49.5%)	2 ^b	2.97	300 (100%)	3 ^b	4.76	101.81	<.001	$\eta^2 = 0.22$
Defecating	156 (52.2%)	10 ^a	19.80	143 (47.8%)	5 ^b	5.87	300 (100%)	5 ^c	8.65	65.45	<.001	$\eta^2 = 0.15$
Showering without shampooing	187 (62.5%)	15 ^a	23.79	112 (37.5%)	6 ^b	8.19	300 (100%)	7 ^b	9.60	98.49	<.001	$\eta^2 = 0.19$
Showering with shampooing	184 (61.5%)	20 ^a	31.20	115 (38.5%)	10 ^b	11.87	300 (100%)	10 ^b	13.53	81.30	<.001	$\eta^2 = 0.19$
Writing email	154 (51.5%)	10 ^a	10.47	145 (48.5%)	3 ^b	3.77	300 (100%)	3 ^b	4.74	70.91	<.001	$\eta^2 = 0.21$
Eating meal	97 (32.4%)	20 ^a	22.12	202 (67.6%)	15 ^b	14.62	300 (100%)	15 ^b	19.62	32.96	<.001	$\eta^2 = 0.06$
Grocery shopping	198 (66.2%)	30 ^a	36.78	101 (33.8%)	25 ^b	23.53	300 (100%)	30 ^a	36.72	26.59	<.001	$\eta^2 = 0.04$
Cleaning apartment	208 (69.6%)	110 ^a	153.87	91 (30.4%)	60 ^a	80.09	300 (100%)	60 ^a	87.13	10.87	.004	$\eta^2 = 0.04$

Notes. Groups were compared using the median of the duration of daily life activities. Note, however, that the median test compares the frequencies of persons lying below and above the median but—as persons can also have values at the median—it is possible that two groups have the same median but can still differ significantly. Arithmetic means are reported here for transparency but readers should be aware that—in contrast to the median—these values are substantially biased by outliers. Different superscripts indicate significant group differences. Effect size = Eta-squared.

Table 4

Robust percentage bend correlation coefficients for the associations between the duration of daily life activities and obsessive–compulsive symptom severity.

	Obsessive–Compulsive Inventory–Revised			Yale–Brown Obsessive Compulsive Scale		
	<i>pbcor</i>	Test statistics	p	<i>pbcor</i>	Test statistics	p
Leaving the apartment ^a	0.26	6.67	<.001	0.14	3.46	<.001
With obsessions and/or compulsions	–	–	–	0.22	3.61	<.001
Without obsessions and/or compulsions	–	–	–	–0.001	–0.004	.997
Persons without obsessive–compulsive disorder	–	–	–	0.05	0.93	.352
Handwashing	0.24	6.09	<.001	0.16	3.87	<.001
Brushing teeth	0.19	4.72	<.001	0.13	3.20	.001
Urinating	0.23	5.72	<.001	0.12	2.96	.003
Changing clothes	0.18	4.34	<.001	0.11	2.59	.010
Bank transfer	0.23	5.82	<.001	0.17	4.28	<.001
Defecating	0.26	6.44	<.001	0.17	4.33	<.001
Showering without shampooing	0.31	8.01	<.001	0.33	8.57	<.001
Showering with shampooing	0.29	7.27	<.001	0.32	8.14	<.001
Writing email ^a	0.32	8.15	<.001	0.27	6.72	<.001
With obsessions and/or compulsions	0.41	5.46	<.001	0.30	3.79	<.001
Without obsessions and/or compulsions	–0.10	1.21	.229	–0.06	–0.72	.473
Persons without obsessive–compulsive disorder	0.13	2.19	.029	0.06	1.05	.294
Eating meal	0.12	2.96	.003	0.03	0.71	.476
Grocery shopping	0.05	1.26	.207	–0.01	–0.29	.769
Cleaning apartment	0.10	2.39	.017	0.13	3.23	.001

^a Significant interaction effects (see main text) indicated that associations differed as a function of groups, which is why we report the correlation coefficients separately as a function of group here.

current study, thus, emphasizes the time-consuming character of OCD and the importance of the temporal classification of obsessions and/or compulsions as this might contribute to determine the severity of OCD symptomatology. In addition, as the duration of daily life activities in persons with obsessions and/or compulsions was higher than in persons without OCD for almost all activities, it can be concluded that the obsessions and/or compulsions of persons with OCD do not exclusively refer to specific and selective situations that are typically observed in persons with OCD (e.g., handwashing as a result of fear of contamination). Instead, the time-consuming obsessions and/or compulsions appear to also refer to some part to daily life activities in general.

4.2. Clinical implications

Although existing literature suggests that persons with OCD require more time to perform various daily life activities and experience functional impairments (Eisen et al., 2006; Steketee et al., 1996), the present study is the first that quantifies the time spent performing these tasks and, therefore, has several clinical implications for diagnosis and

psychotherapeutic treatment. While the assessment of the duration of daily life activities does not replace established diagnostic procedures, it may contribute to the assessment of relevant obsessions and/or compulsions and the degree of functional impairment. For example, persons with OCD may be unaware or ashamed of obsessions and/or compulsions in certain daily life activities and, thus, may not report these but they may be revealed by above-average durations compared to reference values (Weingarden and Renshaw, 2015).

Therapeutically, one of the main goals in the treatment of persons with OCD is the reduction of time spent on obsessions and/or compulsions. As these also influence daily life activities, the current results can be used to define target and normal behavior, that is, specifically defined durations for affected daily life activities (Koch et al., 2023, p. 88). Resulting from this, clinicians are able to tailor individual exposure exercises by using idiosyncratic stimuli to reduce time spent on those activities. For example, a patient who needs exceptionally longer for showering with shampooing might agree on the therapists' suggestion of conducting self-guided exposure exercises by using a stopwatch when taking a shower. The timer might then be set to alert after 10 min,

indicating the patient to stop showering. Thus, persons with OCD may potentially use reference values of persons without OCD as a guide to relearn how much time should be spent on daily life activities on average (Weingarden and Renshaw, 2015). Yet, the current findings should be replicated in future studies before incorporating these suggestions in clinical practice.

Another implication for psychotherapeutic treatment is that the quantification of time spent on daily life activities may be relevant for therapists, as it could be used to help persons with OCD develop awareness of how long they actually spend on various tasks and what ‘normative’ amounts of time in the absence of OCD and OCD-specific impairment may look like (Koch et al., 2023, p. 88). As persons with OCD often underestimate the duration of their daily life activities, it can be assumed that behavioral observation (i.e., measurement of the time required to perform a certain activity) and comparing results with reference values of persons without OCD has a therapeutic effect. The feedback of one’s own above-average durations in daily life activities can contribute to make the distress of persons with OCD understandable and transparent for therapists and can also support the development of symptom insight in persons with OCD. This is of particular relevance as poor symptom insight is associated with higher OCD symptom severity and higher rates of comorbid disorders, such as depression (Middleton and Hezel, 2019). Furthermore, persons with OCD with low symptom insight are more likely than those with high symptom insight to display weaker responses to first-line treatments, such as cognitive-behavioral therapy with exposure and response prevention (Kishore et al., 2004; Middleton and Hezel, 2019).

One way to strengthen symptom insight is that therapists communicate the individual scores of a person with OCD based on indications of quantity (e.g., “it takes you longer to shower than the majority of a comparison group of persons without OCD”). Thus, the discrepancy in the duration of daily life activities between persons with and without OCD is vividly demonstrated, contributing to an increase in symptom insight. Hence, the present results might contribute to strengthen the motivation and willingness to fully engage in therapy as psychotherapists can show persons with OCD how much more flexibility and free time for positive activities they can achieve by undergoing psychotherapy (Reid et al., 2017).

4.3. Limitations

As in every study, interpretation of the current results is limited to the persons and methods investigated. Hence, the current findings are limited to persons with OCD receiving inpatient treatment and may not necessarily translate to persons with OCD receiving outpatient treatment who mostly have a lower OCD symptom severity, possibly resulting in lower durations of daily life activities (Grøtte et al., 2018). Furthermore, diagnoses were established with unstructured clinical interviews, which might have lower reliability than establishing diagnoses with structured clinical interviews. Additionally, results are limited to the examination of the duration of daily life activities based on self-report which may be biased (e.g., due to recall bias or social desirability; Shiffman et al., 2008). Hence, future studies may record durations of daily life activities by using ecological momentary assessment which has been labeled “a worthy addition to the suite of assessment tools used when working with clients who have OCD” (Tilley and Rees, 2014, p. 1). Ecological momentary assessment can be defined as the repeated collection of real-time data of persons’ momentary experiences in their natural environments (Landmann et al., 2020). For example, event-based sampling that requires persons with OCD to report the duration of a given activity at the time or directly after the activity has actually been performed could reduce or avoid biases that are introduced by retrospective reporting (Rupp et al., 2019; Shiffman et al., 2008). This approach could also be combined with instructing persons with OCD to use a stopwatch when reporting the duration of activities (although this may in turn influence the duration of activities).

Future research may also enquire about other reasons for long durations of daily life activities such as depressive symptoms (which is, amongst others, characterized by psychomotor retardation), the use of medication such as antipsychotics (which might also result in persons acting much slower when undertaking daily life activities), and obsessional slowness (Fischer et al., 2021; Lohr et al., 2013; Singh et al., 2013). The latter condition is characterized by particularly slow motor performance which mostly relates to personal hygiene and activities of daily living, such as cleaning the apartment (Ganos et al., 2015; Hoffmann and Hofmann, 2017, p. 43). Although evidence on this condition is sparse, pathophysiology appears to be associated with OCD and might be considered when conducting similar examinations (Ganos et al., 2015). Finally, as evidence on the consequences of longer durations of daily life activities is sparse, future studies may also focus on the implications of those on quality of life as well as interferences with occupation, leisure activities, and interpersonal relationships.

4.4. Conclusions

Results indicate that the duration of a subset of daily life activities in a sample of persons with OCD is higher than in persons without OCD. Instead, the time required for performing a given activity seems to depend more on whether or not a person experiences obsessions and/or compulsions associated with that activity. Yet, this study still shows that many areas of life are affected in which persons with OCD experience obsessions and/or compulsions. Therefore, persons with OCD are more likely to display high durations for various activities in their daily life that are not typically part of core OCD symptoms which possibly results in having less time for positive activities. Hence, an important goal in psychotherapeutic treatment of OCD may be the reduction of the duration of daily life activities. Accordingly, psychotherapists may attempt to motivate persons with OCD to benefit from the newly gained free time and engage in beneficial activities promoting mental health such as physical exercise or fostering friendships (Firth et al., 2019; King et al., 2016).

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Data availability statement

The data set and annotated R-code for our main analyses are available at <https://osf.io/v37j8/>.

CRediT authorship contribution statement

Eva M. Zisler: Data curation, Formal analysis, Methodology, Software, Writing – original draft, Writing – review & editing. **Adrian Meule:** Data curation, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Stefan Koch:** Conceptualization, Writing – review & editing. **Rebecca Schennach:** Conceptualization. **Ulrich Voderholzer:** Conceptualization, Supervision, Writing – review & editing.

Declaration of competing interest

The authors report there are no competing interests to declare.

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