

Pooled frequency meta-analysis of family-accommodation (FA) in obsessive-compulsive disorder (OCD): A pervasive phenomenon

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ABSTRACT

Introduction: Family accommodation (FA) in obsessive-compulsive disorder (OCD) refers to caregivers' involvement in the OCD symptomatology affecting a relative or a loved one. FA has a detrimental impact on caregivers' quality of life. This meta-analysis, for the first time, aims to define pooled estimates of how frequent FA and specific accommodating behaviors are in OCD.

Materials and methods: Our protocol was pre-registered with PROSPERO (CRD42024566821) and we followed PRISMA-guidelines. To be eligible, studies were required to include patients diagnosed with OCD and at least one caregiver, and to include data describing the presence or absence of FA. Meta-analysis of proportions based on random-effects (Der-Simonian-and-Laird-method) was used to derive the pooled estimates.

Results: A total of 39 studies were included in the meta-analysis. FA was found to occur on a monthly and weekly basis in over 90 % of OCD cases, and in nearly 50 % of cases on a daily basis. The most frequent FA behaviors involved providing reassurance and waiting for compulsions completion. No significant associations were found between FA frequency and OCD severity or treatment outcome. Meta-regression analyses showed a positive association between male gender in caregivers and the pooled-rate frequencies of several accommodating behaviors.

Conclusions: Family accommodation is a pervasive and intrinsic feature of OCD, though its presence may not be linked to symptom severity or treatment response. Male figures may be more frequently involved in FA behaviors compared to females. FA could be considered an epiphenomenon and a marker of OCD, and part of its diagnostic framework.

1. Introduction

Families of patients with obsessive-compulsive disorder (OCD) are more involved in the symptoms of the disorder compared to families of individuals with other psychiatric conditions (Albert et al., 2010; Cooper, 1996; Renshaw et al., 2005). Family accommodation (FA) refers to the process by which family members either support or become involved in the patient's symptomatology in various ways (Albert et al.,

2007; Calvocoressi et al., 1999). These include offering reassurance, helping to avoid OCD triggers, or assisting with or directly participating in their rituals. Caregivers may also modify their personal and family routines to accommodate OCD symptomatology, which can result in a decline in quality of life (Wu et al., 2018), as well as experience distress and fears about the potential negative consequences of not accommodating the patient's symptoms (Lebowitz et al., 2011). Other FA behaviors may include substituting the patient in daily responsibilities and

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duties (e.g., making decisions, assuming responsibilities, helping with food preparation, or cleaning).

Family accommodation in OCD has been assessed using various tools developed since the 1990s. The original Family Accommodation Scale (Calvocoressi et al., 1995) laid the foundation for subsequent versions: the interviewer-rated FAS-IR (Calvocoressi et al., 1999), the parent-report FAS-PR (Storch et al., 2007), the self-report FAS-SR (Pinto et al., 2013), and the patient-report FAS-PV (Wu et al., 2016). These scales assess the frequency of accommodating behaviors on a 0–5 Likert scale and yield a global FA severity score. Table 1 summarizes the key features of each version, including respondent type and assessment period.

Four meta-analyses (Iniesta-Sepúlveda et al., 2017; McGrath and Abbott, 2019; Stewart et al., 2020; Thompson-Hollands et al., 2014) specifically explored whether including caregivers in the intervention for OCD could improve treatment outcomes.

Thompson-Hollands and colleagues (2014) carried out a meta-analysis of 29 studies to evaluate the impact of Family Inclusive Treatments (FITs) in OCD. Included studies involved psychological interventions with standardized family involvement and moderator analyses indicated that intervening on families (vs. not specifically targeting the familiar component) led to greater improvements in functioning of patients with obsessive-compulsive disorder but not in OCD symptoms.

McGrath and Abbott (2019) conducted a meta-analytic investigation to examine whether family-related factors had an influence on the effectiveness of CBT with ERP in treating pediatric OCD. They analyzed 37 studies using CBT with ERP, 32 of which included a focus on family variables, primarily family accommodation. While all studies showed significant improvements in OCD symptoms and FA, the inclusion of family-targeted interventions did not significantly improved outcomes for either OCD or FA.

The study by Iniesta Sepúlveda et al. (2017) examined the efficacy of cognitive-behavioral family treatment (CBFT) in children and adolescents with OCD. The selected studies ($N = 27$) showed that the effect size of CBFT was both clinically relevant and statistically significant for the reduction of OCD symptoms and family accommodation (FA), although to a considerably lesser extent for the latter ($d = 1.464$ and $d = 0.511$, respectively).

The meta-analysis by Stewart et al. (2020) ($N = 16$ studies) concluded that family-based therapies improve both OCD symptom severity ($g = 1.20$) and family accommodation ($g = 0.83$) in adults with OCD. Furthermore, this study indicated that family-based therapies had superior results in OCD symptom severity and family accommodation compared to individual-based interventions.

Overall, the aforementioned four meta-analyses (Iniesta-Sepúlveda et al., 2017; McGrath and Abbott, 2019; Stewart et al., 2020; Thompson-Hollands et al., 2014) have limitations when it comes to

analyzing the broader role of family accommodation in OCD. Each focuses on studies employing specific interventions, and none aim to provide a comprehensive analysis of FA in OCD. Nevertheless, their findings suggest that interventions involving family members may contribute to reductions in OCD symptomatology and degree of FA. However, the specific inclusion of FA-targeted components does not consistently appear to be associated with greater improvements in OCD symptomatology. Furthermore, none of these studies assessed whether standard evidence-based treatments for OCD - such as pharmacotherapy or ERP-based CBT - have any effect on FA or other family-related variables (e.g., caregivers quality of life). Thus, important questions remain regarding the role of FA in OCD, including its association with symptom severity, its impact on treatment outcomes, whether family-involved treatments outperform standard approaches in reducing symptoms and FA, and how FA changes throughout treatment and across modalities.

However, a recent, comprehensive, and up-to-date meta-analysis by Hermida-Barros et al. (Hermida-Barros et al., 2024), including one hundred-eight studies involving 8928 individuals with OCD, yielded noteworthy findings that contribute to bridge these existing gaps in the literature and offer a more refined conceptualization of the overall role of family accommodation in OCD. This meta-analysis builds upon two other meta-analytic investigations (Strauss et al., 2015) and Wu et al., 2016) exploring the relationship between the severity of family accommodation as measured by FAS scales and the severity of OCD as measured by the Yale-Brown Obsessive Compulsive Scale (Y-BOCS) (Goodman et al., 1989) for the adult population, or the Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS) (Scahill et al., 1997) for the pediatric population.

Firstly, Hermida-Barros and colleagues found a significant positive correlation between family accommodation (as measured by the FAS scales) and OCD severity [as measured by (CY-BOCS)] ($r = 0.42$, $p < 0.0001$). The magnitude of this correlation was the same to the one derived from Wu and colleagues (2016) and higher than the one obtained in the study by Strauss et al. (2015) ($r = 0.35$; 95 % CI: 0.23–0.47). Nonetheless, no association between baseline family accommodation and OCD treatment outcomes was detected ($g = -0.02$, $p = 0.6113$). This suggests that pre-treatment family accommodation scores may not have a significant impact on treatment response. Secondly, this meta-analysis also revealed that OCD treatments, in the absence of specific interventions directed at FA, were associated with significant reductions in FA scores from pre- to post-treatment ($g = 1.33$, $p < 0.0001$). Notably, only one study (Gorenstein et al., 2015) included in the meta-analysis by Hermida-Barros et al. specifically investigated the effect of pharmacological monotherapy on FA score reduction, and this study also showed a significant post-treatment reduction in FA for both SSRI and Group Cognitive Behavioral Therapy (GCBT). This comprehensive meta-analysis, however, does not provide precise estimates of the frequency of family accommodation.

Despite limitations of these findings due to the heterogeneity of treatments included in the analysis, the emerging results suggest that a) high levels of pre-treatment FA do not predict a poor outcome following OCD treatment and b) treating the OCD itself seems to be the most important ingredient in improving FA rather than vice-versa. In this context, the positive association between family accommodation and OCD severity raises new interlinked hypotheses that a) FA arises as a clinically relevant epiphenomenon reflecting the severity of OCD symptoms in the affected individual and b) that FA represents a natural, adaptive response of family members to the severity of OCD, rather than a dysfunctional family dynamic. The findings by Hermida-Barros et al., showing that treatments not specifically involving family components (e.g., individual CBT/SSRI) also lead to a reduction in family accommodation, and even outperforms family-based CBT, further support this hypothesis.

Nevertheless, while treatments specifically targeting FA may not directly influence OCD severity, addressing these behaviors has

Table 1
Main characteristics of the family accommodation scales.

Type of FAS	Number of items	Clinician Administered	Self-report by Relative	Self-report by Patient	Assessment time period
FAS	13	X			Last month
FAS - IR	12	X			Last week
FAS - PR	12		X		Last month
FAS - SR	19		X		Last week
FAS - PV	19			X	Last week

FAS: Family Accommodation Scale; FAS-IR: Family Accommodation Scale for Obsessive-Compulsive Disorder Interviewer-Rated; FAS-PR: Family Accommodation Scale Parent-Report; FAS-SR: Family Accommodation Scale-Self-Rated; FAS-PV: Family Accommodation Scale Patient-Version).

consistently demonstrated to contribute to improvements in the quality of life of family members (Kobayashi et al., 2020; Stewart et al., 2020). Recent evidence suggests that caregivers of patient suffering from OCD have clear needs that should be addressed with the aim of preventing and/or reducing their levels of burden and distress (Sowden et al., 2023).

To our knowledge, no meta-analysis has so far examined the overall pooled-rate frequency of FA in OCD. The aim of this study, therefore, is to contribute to the conceptualization of FA by determining, through meta-analytic statistics, the accurate pooled-rate frequency of family accommodation in obsessive-compulsive disorder. We also aim to decompose FA into its constituent accommodating behaviors to investigate whether some components are more prevalent than others.

2. Materials and methods

2.1. Search methodology

A systematic evaluation of the literature was performed in accordance with the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-analysis) Statement (Moher et al., 2009). Our protocol was pre-registered with PROSPERO under the identifier CRD42024566821.

2.2. Search strategy

The following search terms were used: ((“family accommodation”) OR (“family-based treatment”) OR (“family involvement”)) AND ((OCD) OR (obsessive) OR (“obsessive-compulsive disorder”) OR (obsess*)).

The literature search, updated to December 31st, 2024, was performed across four electronic databases: Medline, PsycINFO, Web of Science, and CINAHL, as well as by a manual review of the bibliographies of the selected publications.

2.3. Article selection and review strategy

No constraints regarding the year of publication of the articles were imposed during the search to ensure the comprehensiveness of our inquiry. The references cited in the relevant publications were manually examined to identify additional pertinent research.

Two reviewers (GT and FS) identified and evaluated articles for eligibility, independently determining which to include based on the specified criteria (see below). In the case of a dispute, a third author (LP) was consulted to reach a consensus. Duplicate studies were removed, and the references within the identified papers were carefully examined.

2.4. Eligibility criteria

The inclusion criteria for the studies were as follows: 1) Participants (either children/adolescents and/or adults) diagnosed with OCD according to DSM-IV/DSM-5 or ICD-10 criteria. 2) At least one parent or caregiver involved in the study. 3) Availability of quantitative data regarding the frequency of family accommodation as an overall phenomenon or as specific accommodating behaviors - reported as monthly, weekly or daily frequencies. 4) For studies assessing OCD severity, this had to be done using the “gold standard” assessment instruments: the Yale-Brown Obsessive Compulsive Scale (Y-BOCS) (Goodman et al., 1989) for the adult population, or the Children’s Yale-Brown Obsessive Compulsive Scale (CY-BOCS) (Scahill et al., 1997) for the pediatric population.

We included all quantitative studies (longitudinal, cross-sectional, clinical trials) that presented data on the frequency of family accommodation in OCD, excluding conference papers, book chapters, and dissertations. This systematic review excluded case studies, qualitative research, non-empirical studies, reviews, and studies not written in English. We also excluded studies conducted in individuals with a

primary diagnosis other than OCD (e.g., individuals with Bipolar Disorder or Schizophrenia), even if they assessed FA.

2.5. Data extraction and imputation

Information on family accommodation (FA), along with socio-demographic and clinical variables that might influence this parameter, were gathered from the available studies. Two authors (GT and FS) independently extracted the following data (as preregistered in our protocol on PROSPERO):

1. data on FA frequency
2. study variables subdivided in:
 - a. sociodemographic information (e.g., for caregivers: number of caregivers participating in the study, mean age, gender, relationship to the patient [Parent, Mother, Father, Spouse/Partner, Sibling, Child/Son, Other]; for patients: number of patients, mean age, gender, education level [mean years], employment or student status [including homemaker, self-employed, etc.], total number of family members)
 - b. clinical characteristics (e.g., scores on FA scales, OCD severity as measured by the (C)Y-BOCS). We collected variables based on the hypothesis that they may play a role in the conceptualization of FA in OCD: percentage of patients with comorbid Major Depressive Disorder (MDD), BDI and/or HAM-D scores, percentage of patients with other psychiatric comorbidities, percentage of patients with substance use, length of duration of untreated illness (DUI) and percentage of any psychiatric comorbidities in the caregiver sample (including OCD).

For the extraction of quantitative data regarding family accommodation, we first aimed to explore three FA frequencies as overall phenomena: monthly (at least one behavior per month), weekly (at least one behavior per week), and daily (at least one behavior per day). We extrapolated the overall frequency data when reported by the study authors.

Secondly, since all the scales measuring FA share common questions and themes related to the different accommodating behaviors, we grouped these themes into twelve major categories/behaviors that were common across all scales. The twelve major themes were the following: “Providing reassurance”, “Waiting for compulsion completion”, “Refraining from causing triggers”, “Assisting in avoidance”, “Assisting in rituals/compulsions”, “Participation in compulsions”, “Helping with daily living”, “Tolerating unusual behaviors/conditions”, “Modifying personal routines”, “Modifying family routines”, “Assuming patient’s responsibilities”, and “Fearing adverse consequences if not accommodating”. We extrapolated the frequency of each one of these major themes from every study according to the time interval analyzed by the scale: at least once a month (only for the FAS and FAS-PR), at least once a week, at least once a day. When a single scale included more than one question within the same major theme, we extrapolated the frequency from the question with the highest reported frequency.

2.6. Appraisal of methodological quality

The methodological quality of the studies was evaluated by two independent assessors (GT and LP) using a modified version of the Quality Assessment Tool (QAT) for Observational Cohort and Cross-Sectional Studies (<https://www.nhlbi.nih.gov/health-topics/studyquality>). This instrument has 14 components that address certain methodological concerns. We excluded three items that were inconsistent with the characteristics of the majority of the studies examined: item 10 (repeated measurement of the exposure), item 12 (blinded outcome measurement), and item 13 (follow-up loss rates). Each fulfilled item received one point (yes = 1); items that were not satisfied or lacked

adequate information received zero points. A cumulative score between 0 and 11 was then computed.

2.7. Data analyses

A systematic analytical method was used to conduct meta-analyses of proportions and calculate pooled frequencies for family accommodation, in order to derive accurate binomial confidence intervals and generate forest plots. The pooled estimates were calculated after applying the Freeman-Tukey Double Arcsine Transformation (Freeman and Tukey, 1950) to stabilize the variances. A random-effects model was used, using proportions and 95 % confidence intervals (CIs). The heterogeneity of studies was evaluated using Cochran's Q test and the I^2 statistic. $I^2 > 50\%$ indicated significant heterogeneity, prompting an investigation into its causes. The impact of continuous factors was evaluated by univariate random meta-regression utilizing the Der

Simonian and Laird methodology (DerSimonian and Laird, 1986). We used the technique of moments to determine the additive (between-study) variance component τ^2 . Meta-regressions were conducted when a covariate was present in a minimum of five trials. The significance threshold was established at $p < 0.05$. All statistical analyses were conducted using JASP Statistical Software (Version 0.18.3) and Comprehensive Meta-analysis Version 4.

3. Results

3.1. Included studies

We included 39 studies in the quantitative synthesis ($k = 40$ independent samples – one study (Monzani et al., 2020) had two independent samples) ($N = 2750$ total patients; $N = 3666$ total caregivers). The PRISMA flowchart of studies selected and included in the systematic

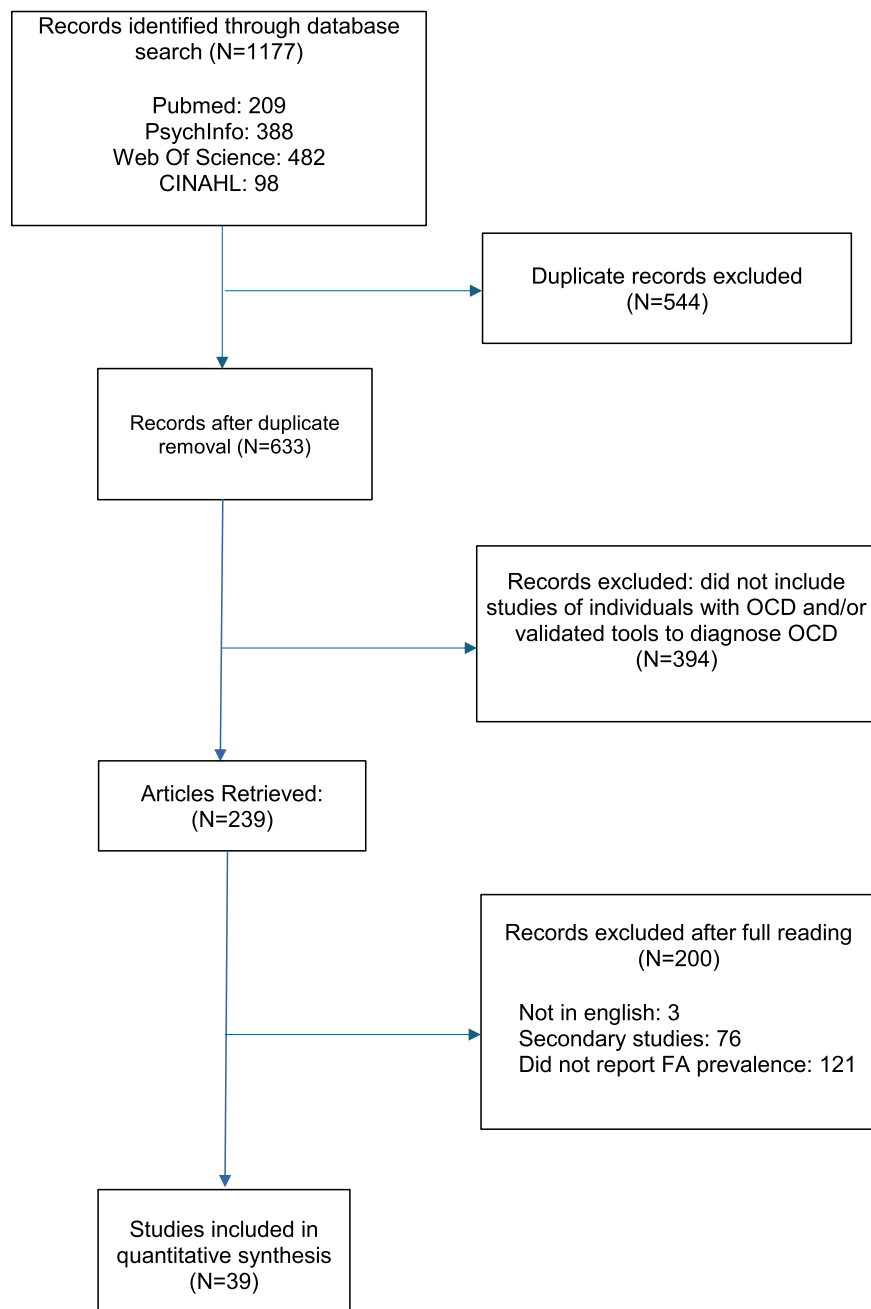


Fig. 1. PRISMA Flow-chart.

review and meta-analysis is provided in Fig. 1. Characteristics of the studies are reported in Table 2.

3.2. Monthly, weekly and daily pooled frequencies

The pooled-rate frequency of monthly FA (Fig. 2) was 95.3 % (N = 563 caregivers) (95 % CI: 88.0–98.3 %), $p < 0.001$, with a heterogeneity score of I^2 (%): 81.26; while the pooled-rate frequency of weekly FA (Fig. 3) was 93.2 % (N = 2532 caregivers) (95 % CI: 89.8–95.6 %), $p < 0.001$, with a heterogeneity score of I^2 (%): 85.16.

In respect to daily FA (Fig. 4), we found a pooled-rate frequency of 47.6 % (N = 3186 caregivers) (95 % CI: 40.2–55.1 %), $p < 0.001$, with

a heterogeneity score of I^2 (%): 93.50.

3.3. Frequency of FA specific behaviors (major themes/categories)

The weekly and daily frequencies of all twelve major behaviors are reported in Table 3, in descending order for daily frequency. Monthly frequencies of individual behaviors were reported by too few studies to allow for statistical analyses.

The most commonly reported behaviors, both weekly and daily, were “Providing reassurance” and “Waiting for compulsion completion”. The first one, reported in 25 studies, had a pooled weekly frequency of 65.2 % (95 % CI: 57.1–72.5 %), $p < 0.001$, with a

Table 2

Frequency rates of FA in each study included in the meta-analysis (N = 39).

Studies	Design	N caregivers	N patients	Mean age	OCD symptom severity - mean (C)Y-BOCS score	% with monthly FA	% with weekly FA	% with daily FA	QAT total score (min 0-max 11)
Albert et al. (2010)	Cross-sectional	141	97	35.6	25.50	-	-	47 %	8
Baruah et al. (2018)	Randomized controlled trial	64	64	30.5	24.92	100 %	-	70 %	9
Boeding et al. (2013)	Cross-sectional	20	20	34	25.95	-	100 %	-	8
Calvocoressi et al. (1995)	Cross-sectional	34	34	35.2	-	88 %	-	23 %	6
Calvocoressi et al. (1999)	Cross-sectional	36	36	30	-	-	89 %	-	7
Chang et al. (2022)	Cross-sectional	42	42	30.2	21.17	-	-	45 %	8
Cherian et al. (2014)	Longitudinal cohort study	94	94	27.6	27.70	72 %	-	46 %	8
Flessner et al. (2011)	Cross-sectional	96	96	11.6	24.50	99 %	-	77 %	9
Francazio et al. (2016)	Longitudinal cohort study	30	30	14.1	22.80	-	53 %	23 %	8
Futh et al. (2012)	Cross-sectional	71	43	14.9	25.16	-	-	45 %	8
Gomes et al. (2014)	Cross-sectional	114	114	40.5	26.90	-	98 %	69 %	9
Griffith et al. 2017	Cross-sectional	50	50	12	23.29	-	90 %	-	7
Jacoby et al. (2021)	Longitudinal cohort study	142	142	12.8	25.27	-	99 %	80 %	7
Kelley et al. (2024)	Cross-sectional	315	315	29.6	-	-	93 %	24 %	6
Kobayashi et al. (2017)	Cross-sectional	41	41	36.8	20.40	-	-	-	8
Kuru et al.	Cross-sectional	92	92	32.1	-	-	100 %	30 %	8
La Buissonnière-Ariza et al. (2022)	Cross-sectional	129	151	34.5	28.43	-	87 %	16 %	9
Lebowitz et al. (2014)	Cross-sectional	26	26	12.1	27.50	96 %	-	-	7
Lee et al. (2021)	Cross-sectional	104	104	33.1	26.00	-	83 %	37 %	7
Liao et al. (2021)	Cross-sectional	91	109	30.7	23.75	-	95 %	59 %	7
Liao et al. (2022)	Cross-sectional	145	171	30.9	-	-	98 %	57 %	8
Liao et al. (2024)	Cross-sectional	171	171	30.9	-	-	90 %	50 %	7
Mahapatra et al. (2017)	Cross-sectional	105	105	34.1	29.41	-	95 %	-	8
Mahapatra et al. (2020)	Cross-sectional	101	101	34.1	27.54	-	92 %	40 %	9
Monzani et al. (2020) A	Cross-sectional	209	209	14.1	27.00	-	-	80 %	8
Monzani et al. (2020) B	Cross-sectional	209	209	14.1	27.00	-	-	57 %	8
Peris et al. (2008)	Cross-sectional	65	65	12.2	25.03	97 %	-	56 %	7
Pinto et al. (2013)	Cross-sectional	37	41	41.8	16.70	-	88 %	34 %	7
Pontillo et al. (2020)	Cross-sectional	102	51	13.5	20.58	100 %	-	-	7
Ramos-Cerqueira et al. (2008)	Cross-sectional	50	50	36.5	20.48	90 %	-	-	7
Riise et al. (2019)	Interventional single-arm trial	63	63	4.4	26.52	-	99 %	-	9
Skarphedinsson et al., (2025)	Cross-sectional	238	238	12.8	25.00	-	98 %	67 %	8
Stewart et al. (2008)	Cross-sectional	110	110	30.8	26.50	-	97 %	59 %	8
Tantrarungroj et al. (2022)	Cross-sectional	50	44	34.4	-	-	54 %	22 %	8
Tulaci, Izci Kasal (2023)	Cross-sectional	81	81	34.5	23.80	-	95 %	39 %	8
Van Den Berg et al., (2022)	Interventional single-arm trial	52	52	30.0	27.58	-	94 %	-	9
Verma et al., (2018)	Cross-sectional	45	45	30.6	25.86	-	91 %	-	8
Vikas et al. (2011)	Cross-sectional	32	30	29.9	17.25	97 %	-	-	7
Wu et al. (2016)	Cross-sectional	61	61	32.6	22.33	-	89 %	15 %	8
Wu et al. (2019)	Cross-sectional	150	150	12.4	25.20	-	99 %	60 %	8

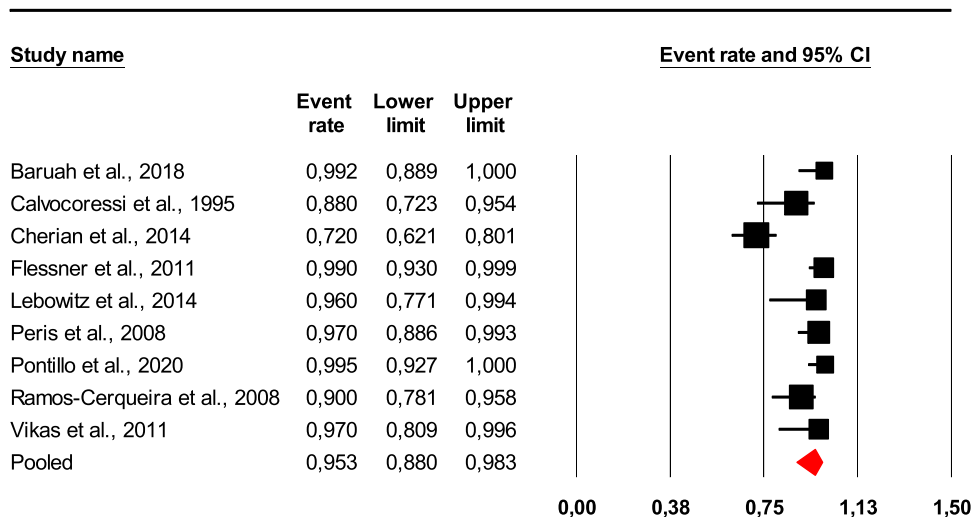
(C)Y-BOCS: (Children's) Yale-Brown Obsessive-Compulsive Scale

% with monthly FA: at least one behaviour a month

% with weekly FA: at least one behaviour a week

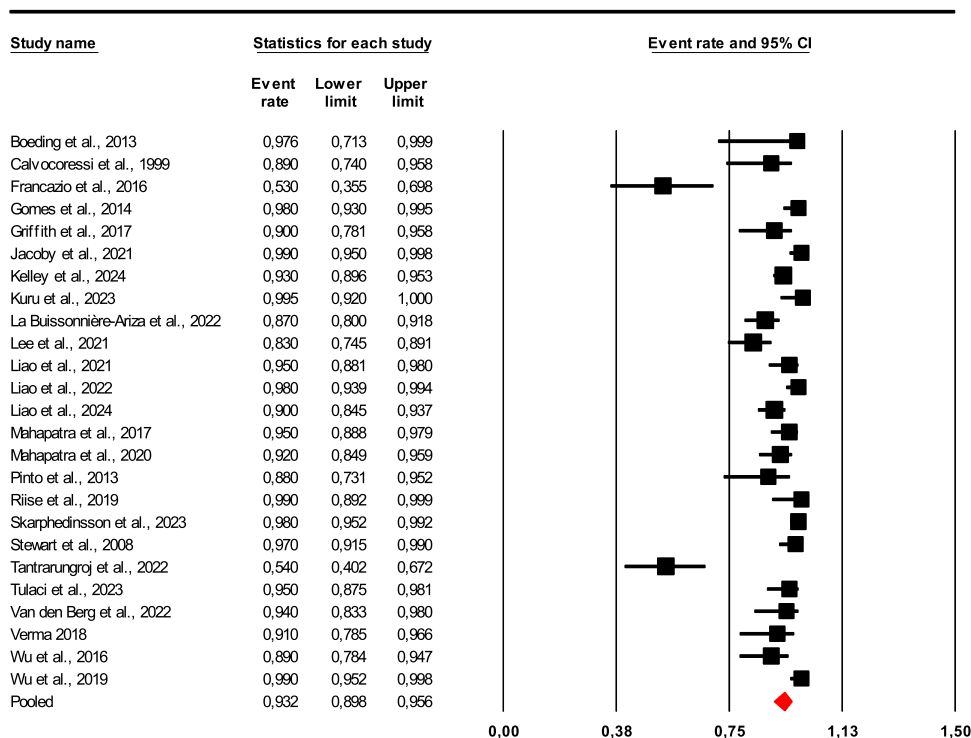
% with daily FA: at least one behaviour a day

QAT: Quality Assessment Tool



Meta Analysis

Fig. 2. Pooled frequency of monthly FA.

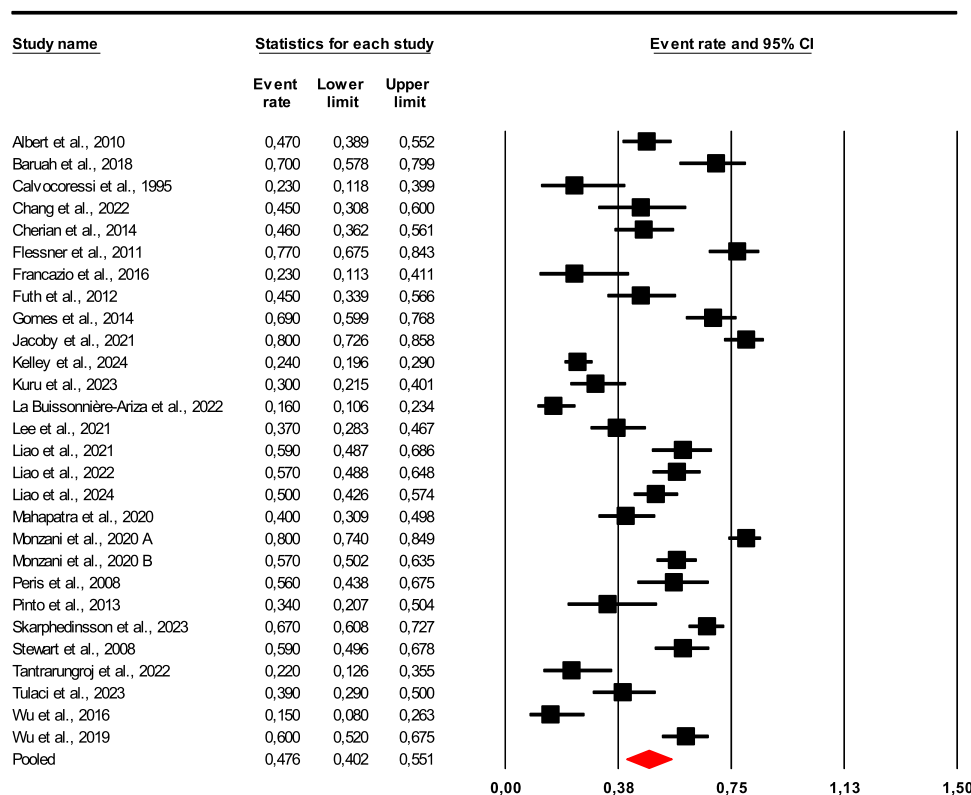


Meta Analysis

Fig. 3. Pooled frequency of weekly FA.

heterogeneity score of I^2 (%): 93,01; while its pooled daily frequency was 30.2 % (95 % CI: 24.5–36.4 %), $p < 0.001$), with a heterogeneity score of I^2 (%): 89.93.

The behavior “Waiting for compulsion completion” was analyzed in 19 studies and had a pooled weekly frequency of 51.4 % (95 % CI: 42.4–60.3 %), $p < 0.001$), with a heterogeneity score of I^2 (%): 92.28;



Meta Analysis

Fig. 4. Pooled frequency of daily FA.

Table 3

Weekly and daily frequencies of the twelve major FA behaviors.

12 major FA behaviors	Daily frequencies % (95 % CI)	P-value	Heterogeneity (I ²)	Weekly frequencies % (95 % CI)	P-value	Heterogeneity (I ²)
Providing reassurance	30.2 % (24.5–36.4)	< 0.0001	89.936	65.2 % (57.1–72.5)	< 0.0001	93.006
Waiting for compulsion completion	21.9 % (17.6–26.9)	< 0.0001	81.781	51.4 % (42.4–60.3)	< 0.0001	92.277
Refraining from causing triggers	20.3 % (16.5–24.8)	< 0.0001	78.079	43.5 % (36.7–50.6)	< 0.0001	87.723
Participation in compulsions	19.7 % (15.8–24.3)	< 0.0001	84.786	37.3 % (31.8–43.2)	< 0.0001	87.018
Assisting in avoidance	14.9 % (11.2–19.6)	< 0.0001	88.469	38.0 % (30.2–46.5)	< 0.0001	93.073
Tolerating unusual behaviors/conditions	14.9 % (11.3–19.4)	< 0.0001	77.438	44.4 % (35.5–53.8)	< 0.0001	91.358
Assisting in rituals/compulsions	13.1 % (10.4–16.4)	< 0.0001	77.374	29.0 % (23.4–35.4)	< 0.0001	89.870
Fearing adverse consequences if not accommodating	12.9 % (7.4–21.7)	< 0.0001	89.864	42.1 % (30.8–54.3)	< 0.0001	91.533
Helping with daily living	12.2 % (8.9–16.7)	< 0.0001	81.611	35.9 % (28.4–44.2)	< 0.0001	90.484
Assuming patient's responsibilities	10.0 % (7.7–12.9)	< 0.0001	74.581	32.7 % (24.9–41.7)	< 0.0001	93.653
Modifying personal routines	9.3 % (7.2–12.1)	< 0.0001	72.047	33.3 % (25.2–42.4)	< 0.0001	93.903
Modifying family routines	8.3 % (5.8–11.7)	< 0.0001	74.013	30.0 % (20.6–41.3)	< 0.0001	94.358

CI: confidence interval

and by a pooled daily frequency of 21.9 % (95 % CI: 17.6–26.9 %), $p < 0.001$, with a heterogeneity score of I^2 (%): 81.78.

Other common behaviors, respectively weekly and daily, were “Tolerating unusual behaviors/conditions” (pooled weekly frequency of 44.4 % (18 studies) (95 % CI: 35.5–53.8 %), $p < 0.001$, I^2 (%): 89.94), and “Refraining from causing triggers” (pooled daily frequency of 20.3 % (20 studies) (95 % CI: 16.5–24.8 %), $p < 0.001$, I^2 (%): 78.08). The forest plots for the daily and weekly frequencies of the twelve major FA behaviors are reported in the [Supplementary Material](#).

3.4. Correlations between pooled overall FA frequencies and study variables

A positive statistically significant correlation was detected between the monthly overall frequency of FA and the percentage of caregivers being parents ($\beta = 0.237$; $p < 0.001$; $N = 6$ studies). On the other end, the percentage of mothers in the caregivers sample was found to be negatively associated with the daily overall frequency of FA ($\beta = -0.548$; $p = 0.002$; $N = 7$ studies), while another negative correlation was identified between the percentage of males among patients and the weekly overall FA frequency ($\beta = -0.180$; $p = 0.013$; $N = 12$ studies).

No statistically significant correlations were found between either monthly ($\beta = -0.008$; $p = 0.280$; $N = 8$ studies), weekly ($\beta = 0.006$; $p = 0.265$; $N = 19$ studies) or daily ($\beta = 0.017$; $p = 0.287$; $N = 22$ studies) overall frequencies of FA and OCD baseline severity. Moreover, daily and weekly FA frequencies were not linked with OCD treatment outcome (as indicated by the variation in the (C)Y-BOCS score in the clinical trials included in the meta-analysis) (weekly FA: $\beta = -0.025$; $p = 0.085$; $N = 5$ studies - daily FA: $\beta = 0.01$; $p = 0.938$; $N = 5$ studies). Not enough data were available for statistical analyses to examine the relationship between monthly FA frequency and treatment outcome ($N = 2$ studies available).

3.5. Correlations between weekly frequencies of the twelve major FA behaviors and study variables

Positive statistically significant correlations emerged between the percentage of males in the caregivers sample and the weekly frequencies of the behaviors “Assisting in rituals/compulsions” ($\beta = 1.074$; $p < 0.001$; $N = 13$ studies), “Refraining from causing trigger” ($\beta = 0.857$; $p < 0.001$; $N = 14$ studies) and “Waiting for compulsion completion” ($\beta = 1.316$; $p < 0.001$; $N = 13$ studies). Another positive statistically significant correlation was present between the percentage of caregivers being fathers and the weekly frequency of the behavior “Assisting in avoidance” ($\beta = 0.546$; $p < 0.001$; $N = 6$ studies).

OCD severity was not statistically significantly associated with the weekly frequency of any of the twelve major behaviors, nor it was OCD treatment outcome.

3.6. Correlation between daily frequencies of the twelve major FA behaviors and study variables

The daily frequency of the behavior “Modifying personal routine” was positively associated with the percentage of males ($\beta = 0.274$; $p < 0.001$; $N = 13$ studies) and with the percentage of fathers ($\beta = 0.153$; $p < 0.001$; $N = 6$ studies) in the caregivers sample. Being parents among caregivers was positively associated with the daily frequency of the behavior “Fearing adverse consequences if not accommodating” ($\beta = 0.340$; $p < 0.005$; $N = 7$ studies), while being employed/students among patients was linked with the behaviors “Waiting for compulsion completion” ($\beta = 0.500$; $p = 0.002$; $N = 9$ studies) and “Helping with daily living” ($\beta = 0.380$; $p < 0.001$; $N = 9$ studies).

OCD severity and OCD treatment outcome were not statistically significantly correlated with any of the daily frequencies of the twelve major behaviors.

3.7. Methodological quality of the studies

The methodological quality of the studies was evaluated using a modified version of the Quality Assessment Tool (QAT) for Observational Cohort and Cross-Sectional Studies (<https://www.nhlbi.nih.gov/health-topics/studyquality>). Scores range from 0 to 11, with higher scores indicating better methodological quality. Obtained scores do not reflect the intrinsic validity of the studies themselves, but rather their methodological appropriateness for the purposes of our meta-analysis. Due to their design, cross-sectional studies inevitably received a score of 0 for question 6 (assessing whether FA was measured prior to OCD severity or Y-BOCS variation) and question 7 (assessing whether the timeframe was sufficient to reasonably expect an association between OCD and FA, if one exists). The QAT scores for individual studies are reported in Table 1. The full analysis is provided in the Supplementary Material.

4. Discussion

Family accommodation is a pervasive phenomenon in OCD: monthly, weekly and daily frequencies of caregivers’ accommodating

behaviors reached overall pooled-rates of 95.3 %, 93.2 % and 47.6 %, respectively. In our analysis, the overall frequency of family accommodation showed no statistically significant correlation - positive or negative - with treatment outcomes or baseline OCD severity. The latter finding appears to be in contrast with the recent work by Hermida-Barros et al. (2024), who reported a significant association. Our results may be explained by the fact that FA frequency does not always directly reflect FA severity (e.g., a caregiver might perform a few accommodating behaviors daily, resulting in high FA frequencies but low overall FA severity). Hence, our findings support the hypothesis that family accommodation may serve as a marker of the disorder and might be present at high frequencies even in mild OCD cases.

Consistent with previous findings (Albert et al., 2017), “Providing reassurance” and “Waiting for compulsion completion” were the most frequently observed specific behaviors, both on a weekly and daily basis.

The pervasive nature of family accommodation has several implications. First, it suggests that accommodating patients’ symptoms represents an inherent and intrinsic aspect of OCD and this implies that when an individual suffers from the condition, accommodating behaviors by caregivers are almost inevitably present. Thus, FA represents an epiphenomenon of the disorder itself, aligned with its psychopathological structure and severity. Our finding - in accordance with previous studies (Hermida-Barros et al., 2024) - that accommodation does not interfere with treatment response (e.g., baseline FA greater frequency is not associated with poorer improvement in Y-BOCS scores), and tends to decrease as OCD symptoms improve (Hermida-Barros et al., 2024), further corroborates this hypothesis.

Second, the widespread presence of FA may indicate that some “accommodating traits” may already be present in the caregivers before the onset of the patient’s disorder. Having a relative with OCD is a well-established risk factor for developing the disorder (Mataix-Cols et al., 2013), and the presence of obsessive-compulsive traits or psychopathology in family members may create a fertile milieu for the development of accommodating behaviors (Chamberlain et al., 2007; Mataix-Cols et al., 2013). Available evidence suggests that specific latent phenotypes such as cognitive inflexibility are more common in relatives of patients with OCD than in controls from the general population (Chamberlain et al., 2007; Mataix-Cols et al., 2013; Nestadt et al., 2000).

Therefore, the high level and frequency of accommodating behaviors observed after the onset of the disorder, may reflect an amplification of traits that were already present in family members, becoming more visible and pronounced as the patient’s OCD symptoms emerge. The vast majority of studies to date have aimed to address family accommodation in order to test the hypothesis that reducing FA could potentially convey a reduction in OCD symptoms. However, most of the current evidence shows that treatments targeting FA do not lead to a greater reduction in OCD severity compared to treatments that do not (Hermida-Barros et al., 2024; Iniesta-Sepúlveda et al., 2017; McGrath and Abbott, 2019), while OCD treatments, in the absence of specific interventions directed at accommodating behaviors, are associated with significant reductions in FA scores (Hermida-Barros et al., 2024). To date, no study has explored the possible role of FA traits as a risk factor for developing the disease itself and thus the hypothesis that targeting these potentially at-risk behaviors through primary prevention initiatives could produce a reduction in the frequency and/or severity of OCD symptoms.

Furthermore, the pervasive nature of family accommodation highlights the significant burden that obsessive-compulsive disorder (OCD) places on families. Caregivers of individuals with OCD often report a reduced quality of life across various domains and experience heightened burden (Albert et al., 2007; Stengler-Wenzke et al., 2006; Sücül-lüoğlu Dikici et al., 2019; Wu et al., 2018).

Despite being almost ubiquitous, family accommodation is still rarely considered in routine clinical practice (Albert et al., 2017). However, emerging evidence suggests that tailored interventions, such as family-based cognitive therapy (Lenhard et al., 2017; McGrath et al., 2023; Schneider and Petersen, 2024; Albert et al., 2009) or

psychoeducation strategies (Demaria et al., 2021; Benatti et al., 2020), may help caregivers reduce accommodation behaviors, thereby potentially improving their overall well-being.

Importantly, it is also increasingly recognized that accommodation behaviors may also occur within the clinical setting (Brakoulias et al., 2025, in submission), where treating clinicians themselves may unconsciously accommodate the patient's OCD. This can happen when clinicians, in an effort to reduce patients' immediate distress or maintain rapport, adjust clinical decisions, avoid triggering situations, or reinforce avoidance behaviors. Such accommodation by clinicians may inadvertently perpetuate the disorder, hinder exposure-based interventions, and lead to suboptimal treatment decisions. Recognizing and addressing this dynamic is essential for maintaining a therapeutically effective stance and ensuring adherence to evidence-based guidelines in the treatment of OCD.

The clinical implications of our findings are that FA, being such an ubiquitous and burdensome phenomenon, would deserve to be investigated in all patients with OCD by default; moreover, an item on family accommodating behaviors could be even introduced in the main clinical assessment tools for OCD (e.g., Y-BOCS). Given that family accommodation does not seem to be linked with OCD treatment outcome, although this point needs further elucidation in future studies (Albert et al., 2006), specific therapeutic programs do not appear to be necessary. However, bearing in mind the impact of FA on quality of life and the burden it causes, care-givers should be considered part of the clinical intervention. Therapeutic approaches, possibly, should not primarily focus on presumed dysfunctional family dynamics with the aim of reducing OCD severity. Such a focus risks implicitly placing blame and guilt on family members for their behaviors. Instead, interventions should aim to address the needs of both caregivers and patients, in order to support them and enhance their quality of life. Moreover, it is essential to prioritize current evidence-based treatments for OCD (e.g., pharmacotherapy and CBT) (Fineberg et al., 2020), as these approaches have been shown to effectively reduce OCD symptoms and, in turn, lead to a decrease in family accommodation, conceptualized as an epiphenomenon that correlates with OCD.

A total of 42.1 % and 12.9 % of caregivers reported engaging in the key behavior "Fearing adverse consequences if not accommodating" on a weekly and daily basis, respectively, with meta-regression analysis finding a positive association between the percentage of caregivers being parents and the daily frequency of this specific behavior. These results reflect a dimension of family burden linked to the fear of triggering externalizing actions in patients with OCD. On this regard, our findings are consistent with previous evidence showing that patients with OCD, particularly children and adolescents, may exhibit aggressive behavior if their OCD-related demands are not satisfied. Parents often accommodate these demands out of fear of potential aggressive outbursts from their loved ones (Albert et al., 2017; Cooper, 1996; Lebowitz et al., 2011). Moreover, being parents of patients with OCD, per se, might be a risk factor for developing family accommodating behaviors, as meta-regressions showed a positive association between percentage of parents among the caregivers sample and the monthly overall frequency of FA.

The behaviors "Helping with daily living", "Assuming patient's responsibilities", "Modifying personal routines", and "Modifying family routines" were reported by at least 30 % and 10 % of caregivers on a weekly and daily basis, respectively. These behaviors reflect the significant impact OCD has on patients' functioning - i.e., their ability to be independent, maintain employment, and engage in social life (Patel et al., 2024; Stein et al., 2019). In this regard, results from meta-regressions pointed out that being employed/students among patients was significantly and positively linked with the FA behaviors "Waiting for compulsion completion" and "Helping with daily living" in caregivers. Consequently, families often face an additional burden, as they must support their loved ones with basic daily needs and adapt their own lives and routines to accommodate the patient's symptoms, in

particular when the individuals with OCD are required to have a significant degree of functioning (e.g., being employed or students).

Additionally, our meta-regression analyses revealed that the daily frequency of the behavior "Modifying personal routine" and the weekly frequencies of the behaviors "Waiting for compulsion completion", "Refraining from causing triggers", and "Assisting in avoidance" were positively and statistically significantly associated with the proportion of males in the caregivers sample. Other positive statistically significant correlations were present between the percentage of caregivers being fathers and the weekly frequencies of the behaviors "Assisting in avoidance" and "Modifying personal routine". These results, therefore, suggest that male figures (fathers, brothers, male partners) may be more involved in those FA behaviours compared to females, and this, at a fully speculative level, may be due to several factors. One could be the differences in family roles and social expectations: in many cultures, males traditionally assume a protective and problem-solving position within the family. When confronted with a loved one's suffering from OCD, they may be more likely to adopt a practical and action-oriented approach, thereby more readily facilitating compulsive behaviors (e.g., "Waiting for compulsion completion"). This reflects a form of active coping aimed at quickly reducing anxiety within the family context (e.g., "Refraining from causing triggers" and "Assisting in avoidance"). Furthermore, there might be differences in perception of the disorder: males may sometimes tend to minimize or rationalize obsessive-compulsive symptoms, considering rituals as transient quirks rather than pathological manifestations (e.g., "Modifying personal routine"). This perception may lead them to fail to recognize the need to reduce accommodation behaviors or to resist fully adhering to therapeutic protocols aimed at minimizing FA. Finally, males usually have a greater willingness to "act" to avoid crises or conflicts, and this might again facilitate accommodation.

The results of our meta-analysis have some limitations and should be interpreted with caution given that significant heterogeneity was observed and additional types of patient-level data would be important to investigate. Moreover, the power to detect certain moderators may have been limited given the small number of studies available.

In conclusion, family accommodation in OCD is a pervasive phenomenon, to the extent that it may be considered an epiphenomenon, a proxy and a marker of the disorder itself, and part of its diagnostic framework, though its frequency is not linked to symptom severity or treatment response. Family accommodation has a notable impact on caregivers well-being, highlighting the need for interventions focused on supporting this category.

CRediT authorship contribution statement

Luca Pellegrini: Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Riccardo Zandonella Callegger:** Conceptualization, Investigation, Methodology. **Federico Strani:** Data curation, Investigation. **Naomi A. Fineberg:** Conceptualization, Supervision, Writing – original draft, Writing – review & editing. **Umberto Albert:** Conceptualization, Investigation, Methodology, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Giovanni Tardivo:** Data curation, Formal analysis, Investigation, Writing – original draft, Writing – review & editing.

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Declaration of Competing Interest

The authors have no interest to declare.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.ajp.2025.104744](https://doi.org/10.1016/j.ajp.2025.104744).

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