



## Research Paper

## Amelioration of suicidal ideation in routine care psychotherapy: Preliminary findings from a large multicenter assessment

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## ABSTRACT

**Background:** Suicidal ideation represents a major concern in clinical practice. Yet, little is known about the effects of routine psychotherapy on the amelioration of suicidal ideation. Therefore, the aim of the current study is to assess mental disorder-specific changes of suicidal ideation in a large sample of adult outpatients undergoing routine-care cognitive-behavioural therapy in Germany.

**Methods:** A total of  $N = 4549$  adult outpatients, 64.2% female; age:  $M(SD) = 36.83 (14.03)$ , range: 18–89 years of age, who completed cognitive-behavioral therapy at one of 26 outpatient clinics in Germany were included in the

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current study. Amelioration of suicidal ideation was assessed using the Suicide Item (Item 9) of the Beck-Depression Inventory.

**Results:** Suicidal ideation was reported by 36.7% of the patients pretreatment and by 17.6% posttreatment. Effect sizes were small to moderate ( $d = 0.25 - 0.51$ ) and 4.4% reported an increase in suicidal ideation. Residual suicidal ideation at the posttreatment assessment was more likely in patients diagnosed with recurrent Major Depression, Dystymia, and Borderline Personality Disorder, and older patients.

**Limitation:** The study relies on a naturalistic sample, no waitlist or control conditions were involved.

**Conclusion:** Across primary diagnoses, a significant proportion of patients experience an amelioration of suicidal ideation over the course of routine-care psychotherapy. Still, a substantial proportion of patients report no change or an increase in suicidal ideation during treatment. Thus, continuous monitoring of suicidal ideation appears to be imperative throughout the psychotherapeutic process.

## 1. Introduction

Suicidal ideation has been shown to be very prevalent in individuals diagnosed with mental disorders (Teismann et al., 2024). Suicidal ideation is a risk factor for suicide (Franklin et al., 2017), even though most individuals who think about suicide will not attempt suicide or die by suicide (Carter et al., 2017). Suicidal ideation shows a highly fluctuating course in many individuals (Hallensleben et al., 2019) and is in itself deeply distressing (Jobes et al., 2024). Furthermore, there are studies showing that suicidal ideation is associated with poorer treatment outcomes (Nobile et al., 2022; von Brachel et al., 2019) and does not respond well to non-specific treatments (including psychopharmacologic treatments: Lopez-Castroman et al., 2016; Nobile et al., 2021): Cuijpers et al. (2013) could show in a first meta-analysis that psychotherapy for depression seems to have a rather modest effect on the amelioration of suicidal ideation. In a similar vein, Meerwijk et al. (2016) and Torok et al. (2020) found meta-analytic evidence that psychotherapeutic treatments that do not explicitly focus on suicidal ideation/behaviour have no antisuicidal effect, whereas suicide-specific treatments (e.g. Bryan and Rudd, 2018; Gysin-Maillart, 2021; Wenzel et al., 2009; see also Henrion et al., 2020; Williams et al., 2017) are associated with reductions in suicidal ideation and/or a lowered rate of suicide re-attempts (cf. Tarrier et al., 2008; Witt et al., 2021). Yet, studies on the topic are rather scarce (Cuijpers et al., 2013), other meta-analyses do not support the idea of the superiority of suicide-specific treatments as compared to non-specific treatments (DeCou et al., 2019; Fox et al., 2020), and studies show that for example trauma-focused psychotherapy for patients suffering from Posttraumatic Stress Disorder (PTSD; Bryan, 2016; Rozek et al., 2022) as well as psychotherapy for insomnia patients (Trochel et al., 2015) is associated with a significant reduction in suicidal ideation. Brown et al. (2018) were the first to investigate the amelioration of suicidal ideation in a naturalistic sample of patients receiving cognitive-behavioral therapy (CBT) for anxiety-related disorders. It was shown that suicidal ideation was significantly reduced in treatments for PTSD and unspecified anxiety disorder, whereas reductions in suicidal ideation in patients suffering from Social Anxiety Disorder (SAD), Generalized Anxiety Disorder (GAD), Panic Disorder (PD) and/or Obsessive-Compulsive Disorder (OCD) did not reach significance. A new onset of suicidal ideation during treatment as well as an exacerbation of suicidal ideation was rarely seen (1.9% to 6.7%) across disorders. These findings speak to the possibility that suicidal ideation responds to non-specific treatments, but that this effect is disorder-specific. Yet, the sample examined in the study by Brown et al. (2018) was rather small ( $N = 355$ ), and only anxiety disorders were investigated.

Against this background, the current study aims to assess mental-disorder-specific changes in suicidal ideation in a large sample of adult outpatients receiving routine-care CBT in Germany. The data analyzed in this study is derived from a project on the coordination of data collection and analysis at research and training outpatient clinics for psychotherapy (KODAP; Margraf et al., 2021; Velten et al., 2017, 2018), which is a nationwide German research collaboration including a large number of university outpatient clinics. All participating clinics

routinely gather data on therapy outcomes as well as on patient characteristics of all patients who start a psychotherapy. There are no specific inclusion/exclusion criteria to utilize an outpatient treatment in Germany.

The current study focuses on changes regarding the occurrence and severity of suicidal ideation depending on the respective primary diagnosis, as well as rates of intensification of suicidal ideation among patients in treatment.

## 2. Methods

### 2.1. Participants and procedure

The sample comprises  $N = 4549$  outpatients, 64.2% female; age:  $M (SD) = 36.83 (14.03)$ , range: 18–89 years of age, who completed CBT at one of 26 outpatient clinics for adults in Germany between April 2014 and August 2022 (cf. Teismann et al., 2024). Assessments were conducted before treatment (T1) and again after treatment termination (T2;  $M = 15.81$ ,  $SD = 8.75$  months after T1;  $M = 40.46$ ,  $SD = 22.56$  therapy sessions). The most frequent mental disorders were Major Depressive Episodes (single/recurrent) and Adjustment Disorders (see Table 1). Treatments were conducted either by licensed psychotherapists ( $n = 1136$ ; 25.9%) or clinical psychologists in advanced CBT training ( $n = 3247$ ; 74.1%), who provided treatment under close-meshed CBT supervision. Treatments generally followed published CBT guidelines for each disorder, but were, in most cases, less standardized than in RCTs. Treatments were paid for by the German health insurance system, which routinely covers 24 to 80 CBT sessions.

All patients were informed that the participating clinic regularly conducts research and provided written informed consent before participation. To assure a standard of quality, all patients seeking help at the participating clinics are required to fill out a demographic data sheet as well as various questionnaires before their intake and after treatment termination. Furthermore, in all participating clinics, diagnoses were determined based on structured clinical interviews – i.e. the Structured Clinical Interview for DSM-IV (SCID, Wittchen et al., 1997) or DSM-5 (Beesdo-Baum et al., 2019) as well as the Diagnostic Interview for Mental Disorders (DIPS; Margraf et al., 2021) – and/or a diagnostic checklist (International Diagnostic Checklist, IDCL, Hiller et al., 1997), conducted by trained clinical psychologists (Margraf et al., 2021). Study procedures of the KODAP network have been reviewed and approved by the Ethics Committee of the Faculty of Psychology, Ruhr University Bochum. Participants were eligible for the current study if complete data on the BDI-II suicide item were available from the pre- and the post-treatment assessment.

### 2.2. Measure

#### 2.2.1. Beck Depression Inventory II – Suicide Item (BDI-II-SI; Hautzinger et al., 2009)

Suicidal ideation was measured using the respective item (Item 9) from the German version of the BDI-II. The BDI-II-SI includes four response options: 0 = I don't have any thoughts of killing myself; 1 = I

have thoughts of killing myself but have not carried them out; 2 = I would like to kill myself; 3 = I would kill myself if I had the chance. Participants are asked to answer the question concerning the last seven days. A higher score indicates greater severity of suicidal ideation. Furthermore, BDI-II-SI scores > 0 serve as an indicator of the presence of suicidal ideation. The BDI-II-SI item has also been used in the study by Brown et al. (2018); furthermore, single-item assessments of suicidal ideation are standard in large-scale studies (e.g., Campos et al., 2023).

2.3. Statistical analysis

Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS 28). Frequencies (%) of suicidal ideation (BDI-II-SI > 0) are reported concerning the different principal diagnoses of mental disorders and the two assessment points (T1/T2). Changes in the severity of suicidal ideation between T1 and T2 are investigated using *t*-tests for dependent samples. Cohens *d* will be reported as effect sizes. Finally, frequencies (%) are reported regarding the intensification of suicidal ideation between T1 and T2. Of note, only mental disorders with a prevalence rate above 1% (T1) within the current sample were investigated separately. Finally, a multiple logistic regression analysis was used to examine which mental disorders were associated with the presence of posttreatment suicidal ideation (yes/no) in patients suffering from pre-treatment suicidal ideation (T1). Statistical significance was approved at *p* < .05 for all analyses.

3. Results

Suicidal ideation (BDI-II-SI > 0) was reported by 35.2% (*n* = 1601) participants pretreatment and by 17.6% (*n* = 802) participants post-treatment (see Table 1): The BDI-II-SI response option “I have thoughts of killing myself but have not carried them out” was affirmed by 32.0% (*n* = 1456) pre- and 16.5% (*n* = 753) posttreatment; 2.4% (*n* = 109) affirmed the BDI-II-SI response option “I would like to kill myself” pretreatment and 0.9% (*n* = 39) posttreatment; 0.8% (*n* = 36) affirmed the BDI-II-SI response option “I would kill myself if I had the chance” pretreatment and 0.2% (*n* = 10) posttreatment. Men and women did not differ regarding the frequency of suicidal ideation pretreatment,  $X^2(1) = 0.638, p = .424$ , and posttreatment,  $X^2(1) = 2.182, p = .140$ . Irrespective of the principle diagnosis there was a significant reduction in severity of suicidal ideation between T1 and T2 (see Table 1) in patients suffering from most mental disorders. Only patients suffering from substance use disorder (ICD-10, F1), remitted Major Depressive Disorder (ICD-10, F32) and Psychological/behavioral factors associated with disorders/diseases classified elsewhere (ICD-10, F54) did not show a significant reduction in suicidal ideation. Effect sizes were mainly small (Cohens *d* < 0.50), with patients suffering from a single episode of Major Depression showing the strongest reduction in suicidal ideation (Cohens *d* = 0.51). An increase in severity of suicidal ideation between the T1 and the T2 assessment was seen in 4.4% of the total sample, with patients suffering from PTSD, Substance Use Disorder and Borderline Personality Disorder showing the highest rates of deterioration (see Table 1).

Taking into account only those patients who suffered from suicidal

Table 1  
Changes in suicidal ideation.

	Sample size <i>n</i>	T 1 Suicidal Ideation (% <sup>1</sup> ) <i>M</i> ( <i>SD</i> )	T 2 Suicidal Ideation (% <sup>1</sup> ) <i>M</i> ( <i>SD</i> )	Statistics	Cohens <i>d</i>	Deterioration of Suicidal Ideation (%)
Total	4549	35.2% 0.39 (0.57)	17.6% 0.19 (0.42)	<i>t</i> (4548) = 24.53***	0.36	4.4%
Substance use disorder	57	33.3% 0.33 (0.47)	26.3% 0.26 (0.44)	<i>t</i> (56) = 1.00	0.13	10.5%
Major Depression (single)	582	43.1% 0.48 (0.61)	17.4% 0.18 (0.40)	<i>t</i> (581) = 12.28***	0.51	3.6%
Major Depression (recurrent)	1008	47.0% 0.52 (0.61)	25.6% 0.28 (0.51)	<i>t</i> (1007) = 12.78***	0.40	5.3%
Major Depression (remitted)	83	18.1% 0.18 (0.38)	15.7% 0.16 (0.36)	<i>t</i> (82) = 0.63	0.07	4.8%
Dysthymia	204	37.7% 0.44 (0.63)	22.5% 0.24 (0.46)	<i>t</i> (204) = 4.69***	0.33	4.9%
Agoraphobia/Panic Disorder	349	24.9% 0.26 (0.45)	8.9% 0.09 (0.28)	<i>t</i> (348) = 7.45***	0.39	1.4%
Social Phobia	327	35.2% 0.39 (0.57)	15.9% 0.17 (0.41)	<i>t</i> (326) = 7.33***	0.41	4.0%
Specific Phobia	139	18.7% 0.19 (0.41)	7.2% 0.08 (0.29)	<i>t</i> (138) = 3.55**	0.30	2.2%
GAD	117	26.5% 0.26 (0.44)	11.1% 0.11 (0.31)	<i>t</i> (116) = 4.09***	0.38	1.7%
OCD	150	31.3% 0.34 (0.54)	16.0% 0.16 (0.37)	<i>t</i> (149) = 4.25***	0.35	2.7%
Adjustment disorder	436	21.1% 0.22 (0.45)	8.7% 0.09 (0.30)	<i>t</i> (435) = 6.46***	0.31	2.8%
PTSD	157	49.7% 0.59 (0.71)	26.1% 0.31 (0.56)	<i>t</i> (156) = 5.07***	0.41	6.4%
Somatoform disorder	228	25.0% 0.25 (0.43)	12.7% 0.13 (0.33)	<i>t</i> (227) = 4.62***	0.31	2.6%
Eating disorder	142	29.6% 0.33 (0.55)	19.0% 0.19 (0.39)	<i>t</i> (141) = 2.96**	0.25	7.7%
Psychological/behavioral factors associated with disorders/diseases classified elsewhere	66	16.7% 0.20 (0.50)	10.6% 0.14 (0.46)	<i>t</i> (65) = 1.27	0.16	4.5%
BPD	88	64.8% 0.86 (0.82)	40.9% 0.51 (0.69)	<i>t</i> (87) = 3.63***	0.39	10.2%

Note. BPD = Borderline Personality Disorder; GAD = Generalized Anxiety Disorder; PTSD = Posttraumatic Stress Disorder; OCD = Obsessive Compulsive Disorder.

<sup>1</sup> BDI-SI > 0.

\*\*\* *p* < .001.

\*\* *p* < .01.

ideation (BDI-II-SI > 0) at the pretreatment assessment ( $n = 1601$ ), 39.4% ( $n = 630$ ) still reported suicidal ideation at the posttreatment assessment. This corresponds with a significant decline in the severity of suicidal ideation,  $t(1600) = 43.14$ ,  $p < .001$ , Cohens  $d = 1.08$ . However, 1.8% ( $n = 28$ ) of these patients reported an increase of suicidal ideation between pre- and posttreatment assessment and 33.9% ( $n = 543$ ) report no change in suicidal ideation between pre- and posttreatment assessment. In a multiple regression (Nagelkerkes  $R^2 = 0.039$ ) using all patients suffering from suicidal ideation at the pretreatment assessment the odds of still suffering from suicidal thoughts at the end of treatment were highest in patients diagnosed with recurrent Major Depression, Dysthymia, and Borderline Personality Disorder (see Table 2). Female gender was associated with reduced odds of suffering from posttreatment suicidal ideation whereas older age was predictive of posttreatment suicidal ideation.

#### 4. Discussion

The present study aimed to investigate changes in suicidal ideation in adult outpatients undergoing routine-care CBT. The rate of patients suffering from suicidal ideation showed a decrease from 35.2% at pretreatment to 17.6% at posttreatment. Furthermore, the severity of suicidal ideation declined significantly in patients suffering from a wide range of mental disorders. Patients suffering from Substance Use Disorder, remitted Major Depressive Disorder and Psychosomatic Disorders did not show a significant reduction in suicidal ideation. These findings complement previous studies that found an effect of non-suicide-specific psychotherapy on suicidal ideation (Brown et al., 2018; Bryan, 2016; Forkmann et al., 2016; Trockel et al., 2015). However, different from these previous studies the current study is the first to show an amelioration of suicidal ideation across a broad spectrum of disorders. This hints at the possibility that routine care psychotherapies might contribute to a reduction in suicidal thoughts across disorders.

Effect sizes were rather small in the current study; the strongest effects were found in patients suffering from single-episode Major Depression, PTSD, and Social Anxiety Disorder. At the same time, the effect sizes of the current study are comparable with those found in other studies on non-suicide specific psychotherapy (Brown et al., 2018; Trockel et al., 2015). Furthermore, the effect size for the change of suicidal ideation was large when only focusing on those patients who suffered from pretreatment suicidal ideation. Against this background,

**Table 2**

Results from a multiple logistic regression analyses predicting presence of posttreatment suicidal ideation in patients suffering from pre-treatment suicidal ideation ( $n = 1601$ ).

Construct	OR	(95% CI)	<i>p</i>
Gender	0.73	0.58–0.90	.004
Age	1.01	1.00–1.01	.014
Substance use disorder	1.83	0.69–4.80	.223
Major Depression (single)	0.97	0.63–1.51	.908
Major Depression (recurrent)	1.73	1.17–2.56	.006
Dysthymia	1.78	1.01–3.15	.044
Agoraphobia/Panic Disorder	0.88	0.49–1.58	.686
Social Phobia	1.22	0.73–2.06	.435
Specific Phobia	0.96	0.38–2.37	.927
GAD	1.13	0.50–2.57	.757
OCD	1.49	0.75–2.96	.252
Adjustment disorder	0.85	0.48–1.51	.592
PTSD	1.73	0.98–3.08	.058
Somatoform disorder	1.33	0.71–2.53	.370
Eating disorder	1.47	0.72–3.03	.289
Borderline Personality Disorder	2.47	1.31–4.65	.005

Note. GAD = Generalized Anxiety Disorder; PTSD = Posttraumatic Stress Disorder; OCD = Obsessive Compulsive Disorder. Patients suffering from remitted Major Depression and Psychological/behavioral factors associated with disorders/diseases classified elsewhere were not included as they represented less than 1% of the sample.

the effects found in the current study are certainly noteworthy. The reduction of suffering, as a result of disorder-specific treatment, may in many cases be a prerequisite for a reduction in suicidal thoughts. Still, it remains unclear from this study, as from others (Brown et al., 2018; Trockel et al., 2015), to what extent non-suicide specific psychotherapy has a preventive effect on suicide (re-)attempts (cf. Meerwijk et al., 2016). Unfortunately, suicide attempts are not routinely assessed in the KODAP dataset. Accordingly, it is neither possible to provide information on the prevalence of suicide attempts in the present study, nor is it possible to examine preventive effects regarding suicide attempts.

Nevertheless, the decrease in suicidal ideation should not obscure the fact that, depending on the type of disorder, an increase in suicidal ideation was recorded in 1.4% to 10.5% of patients between the pre- and the posttreatment assessment (cf. Brown et al., 2018; Cuijpers et al., 2018). This effect was most pronounced in patients suffering from Substance Use Disorder (10.5%), Borderline Personality Disorder (10.2%), and PTSD (6.4%). One might speculate that insufficient improvement under treatment might increase feelings of hopelessness and entrapment and thus contribute to an increase in suicidal ideation. From a clinical perspective, these findings point to the necessity to routinely and repeatedly assess suicidal ideation and behavior across the course of psychotherapy (cf. Demir et al., 2022). Furthermore, a substantial proportion of patients showed no change in suicidal ideation over the course of treatment, with residual suicidal ideation at the end of treatment being more likely in patients suffering from recurrent Major Depression, Dysthymia, and Borderline Personality Disorder, and patients of older age. This has to be taken into account when planning the termination of treatment, even though nearly all patients in the present sample suffered from rather low-severity suicidal ideation.

There are several limitations to the present study. First, the lack of a control group makes it impossible to draw a clear conclusion as to whether the reduction in suicidal ideation was caused by the treatment, the passage of time, or some confounding variable. Accordingly, there is an urgent need for randomized controlled trials, in which non-suicide specific and a suicide-specific treatments are tested against each other in one trial. Alternatively, untreated groups (for example, patients waiting for psychotherapy) could be included in future naturalistic studies so that causal learning methods are possible (Kaiser et al., 2023). Astonishingly, respective clinical trials are currently missing. Second, the fluctuating course of suicidal ideation (e.g. Hallensleben et al., 2019) makes it difficult to assess the extent to which reductions in suicidal ideation represent only a snapshot in time. In future studies, Ecological Momentary Assessment (EMA; Kivelä et al., 2022) surveys at the beginning and end of treatment are therefore recommended. Third, it is unclear whether and to what extent suicidal ideation was specifically addressed in the investigated treatments. On the one hand, suicide-specific treatment programs (Bryan and Rudd, 2018; Jobes, 2023; Wenzel et al., 2009) – except for Dialectic Behavioral Therapy (DBT; Linehan, 1996) – are not yet widespread in Germany.<sup>1</sup> It is therefore highly unlikely that these kinds of treatments were used in the participating outpatient clinics. On the other hand, single suicide-specific interventions such as risk assessment and safety planning might likely have been used in some of the treatments, as this is recommended by common treatment guidelines (BÄK et al., 2022). Fourth, the information about suicidal ideation was self-reported and, thus, subject to potential recall bias and denial. Yet, there are indications that clinicians tend to underevaluate SI (Nobile et al., 2023, 2024) and that self-reported suicidality has a stronger predictive importance for suicidal behavior than interviewer-based assessments of suicidality (Joiner et al., 1999). Fifth, suicidal ideation was only assessed with the respective item of the BDI-II instead of a more comprehensive method to assess suicidal ideation. Single item assessments of suicidality carry the

<sup>1</sup> [www.bundesgesundheitsministerium.de/fileadmin/Dateien/5\\_Publikationen/Praevention/abschlussbericht/supsykli\\_abschlussbericht\\_bf.pdf](http://www.bundesgesundheitsministerium.de/fileadmin/Dateien/5_Publikationen/Praevention/abschlussbericht/supsykli_abschlussbericht_bf.pdf)



risk that not all those affected are identified (Deming et al., 2021; Uhl et al., 2023). Nonetheless, single item assessments of suicidal ideation are standard in large scaled studies (e.g., Rossom et al., 2017), and various studies have used the BDI-II-SI for this purpose (Campos et al., 2023). Furthermore, the BDI-II-SI item has been shown to significantly correlate with more comprehensive measures of suicidal ideation (Campos et al., 2023) and was shown to be associated with both risk of repeated suicide attempts and death by suicide (Green et al., 2015). Sixth, diagnoses were made using standardized or structured diagnostic interviews. However, there is no information on the inter-rater reliability at the different treatment sites. Finally, there is no information in the KODAP dataset on additional pharmacological treatments received by the patients studied here. It therefore remains unclear to what extent the change in suicidal thoughts can be attributed to a combination of pharmacotherapy and psychotherapy.

Regardless of the limitations, the current study adds to previous findings (Brown et al., 2018; Bryan, 2016) showing that there is an amelioration of suicidal ideation across mental disorders in patients undergoing psychotherapy. At the same time, a non-negligible minority of patients report an increase of suicidal ideation under treatment. However, findings have to be seen as preliminary due to various methodological constraints of the current study. A more thorough investigation of the effects of non-suicide specific psychotherapies compared to suicide-specific psychotherapies therefore seems highly warranted.

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#### CRedit authorship contribution statement

**T. Teismann:** Writing – review & editing, Writing – original draft, Formal analysis. **E.L. Brakemeier:** Writing – review & editing, Data curation. **T. Brockmeyer:** Writing – review & editing, Data curation. **H. Christiansen:** Writing – review & editing, Data curation. **L. Fehm:** Writing – review & editing, Data curation. **T. Forkmann:** Writing – review & editing, Data curation. **J. Glombiewski:** Writing – review & editing, Data curation. **J. Heider:** Writing – review & editing, Data curation. **A. Hermann:** Writing – review & editing, Data curation. **J. Hoyer:** Writing – review & editing, Data curation, Conceptualization. **T. In-Albon:** Writing – review & editing, Data curation. **T. Kaiser:** Writing – review & editing, Data curation. **T. Klucken:** Writing – review & editing, Data curation. **T.M. Lincoln:** Writing – review & editing, Data curation. **W. Lutz:** Writing – review & editing, Data curation. **J. Margraf:** Writing – review & editing, Resources, Methodology, Data curation, Conceptualization. **P. Odyne:** Writing – review & editing, Data curation. **A. Pedersen:** Writing – review & editing, Data curation. **B. Renneberg:** Writing – review & editing, Data curation. **J. Rubel:** Writing – review & editing, Data curation. **A. Rudolph:** Writing – review & editing, Data curation. **H. Schöttke:** Writing – review & editing, Data curation. **B. Schwartz:** Writing – review & editing, Data curation. **R. Stark:** Writing – review & editing, Data curation. **E. Wichelhaus:** Writing – review & editing, Data curation. **U. Willutzki:** Writing – review & editing, Data curation. **G. Wilz:** Writing – review & editing, Data curation. **J. Velten:** Writing – review & editing, Writing – original draft, Methodology, Data curation, Conceptualization.

#### Declaration of competing interest

None.

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