

Supplemental material 3 to

Internet-based cognitive-behavioural writing therapy for reducing posttraumatic stress after severe sepsis in patients and their spouses (REPAIR): results of a randomised-controlled trial

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Table S1. Characteristics of participants - stratified by post-ICU patient/spouse status and by treatment group.

Characteristic	Post-ICU patient			Spouse		
	Overall (<i>N</i> = 25)	Treatment group		Overall (<i>N</i> = 25)	Treatment group	
		iCBT (<i>N</i> = 12)	WL control (<i>N</i> = 13)		iCBT (<i>N</i> = 12)	WL control (<i>N</i> = 13)
Male sex; <i>n</i> (%)	17 (68.0)	7 (58.3)	10 (76.9)	9 (36.0)	5 (41.7)	4 (30.8)
Age, in years; median (Q1, Q3)	56 (48, 65)	57 (54, 67)	55 (46, 59)	54 (47, 61)	55 (51, 63)	53 (46, 58)
Among post-ICU patients						
Time since ICU treatment, in years; median (Q1, Q3)	1.8 (1.1, 3.7)	1.9 (1.2, 4.6)	1.6 (1.0, 2.0)	-	-	-
Duration of ICU treatment, in days; median (Q1, Q3)	21 (13, 40)	28 (12, 42)	21 (13, 28)	-	-	-
Mechanical ventilation						
Yes; <i>n</i> (%)	18 (72.0)	9 (75.0)	9 (69.2)	-	-	-
No; <i>n</i> (%)	5 (20.0)	2 (16.7)	3 (23.1)	-	-	-
Not specified; <i>n</i> (%)	2 (8.0)	1 (8.3)	1 (7.7)	-	-	-
Duration of mechanical ventilation among ventilated patients, in days; median (Q1, Q3)**	24 (16, 28)	28 (28, 35)	18 (8, 23)	-	-	-
College or university degree; <i>n</i> (%)	7 (28.0)	2 (16.7)	5 (38.5)	10 (40.0)	5 (41.7)	5 (38.5)
Pre-existing mental disorder (prior to sepsis); <i>n</i> (%)	9 (36.0)	5 (41.7)	4 (30.8)	7 (28.0)	4 (33.3)	3 (23.1)
Treatment of pre-existing mental disorder						
Prior to sepsis; <i>n</i> (%)	8 (32.0)	4 (33.3)	4 (30.8)	7 (28.0)	4 (33.3)	3 (23.1)
Post sepsis; <i>n</i> (%)	4 (16.0)	3 (25.0)	1 (7.7)	2 (8.0)	1 (8.3)	1 (7.7)
Presumptive PTSD diagnosis						

Only one member of the dyad; <i>n</i> (%)	12 (48.0)	6 (50.0)	6 (46.2)	4 (16.0)	2 (16.7)	2 (15.4)
Both dyad members; <i>n</i> (%) [*]	9 (36.0)	4 (33.3)	5 (38.5)	9 (36.0)	4 (33.3)	5 (38.5)
Relationship						
Duration, in years; median (Q1, Q3) [*]	22.2 (16.2, 32.9)	24.5 (19.1, 34.6)	21.8 (12.5, 29.4)	22.2 (16.2, 32.9)	24.5 (19.1, 34.6)	21.8 (12.5, 29.4)
Marital status: married; <i>n</i> (%) [*]	21 (84.0)	10 (83.3)	11 (84.6)	21 (84.0)	10 (83.3)	11 (84.6)

The numbers are based on the dyad population. Overall, there are 25 dyads - 12 dyads in the iCBT group and 13 dyads in the WL control group. Note that each dyad comprises one post-ICU patient and one spouse. The overall number of randomised individuals (*N*) are provided. Characteristics are summarised as median with first and third quartile (Q1, Q3) or as absolute (*n*) and relative frequency (%). Abbreviations: -, not applicable; iCBT, internet-based cognitive-behavioural writing therapy; ICU, intensive care unit; PTSD, post-traumatic stress disorder; WL, waitlist.

^{*} refers to dyad; ^{**} missing for 9 patients (iCBT group: 6, WL control group: 3)

Table S2. Outcomes of participants with presumptive PTSD diagnosis - overall as well as stratified by treatment group.

Outcome	# participants with missing values	Overall (<i>n</i> = 34)	Treatment group	
			iCBT (<i>n</i> = 16)	WL control (<i>n</i> = 8)
PCL-5 ^a ; median (Q1, Q3)				
Change from t0 to t1	5	5 (1, 10)	6 (4, 10)	4 (-1, 10)
Screening	0	38 (36, 47)	39 (36, 49)	38 (36, 45)
t0	1	36 (26, 45)	36 (26, 41)	37 (28, 45)
t1	5	31 (18, 43)	22 (16, 39)	32 (20, 44)
t1+	4	-	-	20 (12, 28)
BSI-18 ^b ; median (Q1, Q3)				
Change from t0 to t1	5	1 (-3, 4)	3 (-1, 5)	-1 (-3, 4)
t0	1	19 (12, 25)	19 (14, 24)	20 (11, 25)
t1	5	17 (9, 28)	13 (9, 21)	20 (10, 28)
t1+	4	-	-	12 (7, 18)
RAS ^c ; median (Q1, Q3)				
Change from t0 to t1	5	0 (0, 0)	0 (0, 1)	0 (-1, 0)
t0	1	2 (2, 4)	2 (2, 4)	2 (2, 2)
t1	5	2 (1, 3)	1 (1, 4)	2 (2, 3)
t1+	4	-	-	2 (1, 3)
EQ-5D-5L ^d ; median (Q1, Q3)				
Change from t0 to t1	5	0.01 (-0.05, 0.09)	0.01 (-0.05, 0.06)	0.01 (-0.05, 0.14)

t0	1	0.69 (0.48, 0.82)	0.73 (0.49, 0.84)	0.66 (0.49, 0.82)
t1	5	0.66 (0.32, 0.83)	0.80 (0.55, 0.85)	0.66 (0.31, 0.82)
t1+	4	-	-	0.79 (0.68, 0.90)
PTSD; <i>n</i> (%)				
t0	0	25 (73.5%)	14 (87.5%)	11 (61.1%)
t1	5	13 (44.8%)	1 (9.1%)	12 (66.7%)
Remission from t0 to t1*	4	12 (57.1%)	9 (90.0%)	3 (27.3%)

The overall number of treated individuals (*n*) are provided. Outcomes are summarised as median with first and third quartile (Q1, Q3) or as absolute (*n*) and relative frequency (%). Percentages refer to number of participants with information for the respective value; number of participants with missing values are provided. Values are provided for several time points: t0, start of intervention (iCBT group) / waiting (WL control group); t1, end of intervention (iCBT group) / waiting (WL control group); t1+, end of intervention in WL control group. Abbreviations: -, not applicable; #, number of; BSI-18, Brief Symptom Inventory-18; CAPS-5, Clinician-Administered PTSD Scale for DSM-5; EQ-5D-5L, Health questionnaire of the EuroQol group in five dimensions with five levels; iCBT, internet-based cognitive-behavioural writing therapy; PCL-5, PTSD Checklist for DSM-5; PTSD, post-traumatic stress disorder; RAS, Relationship Satisfaction Scale; WL, waitlist.

* Both percentage and number of missing values refer to number of participants with PTSD at t0.

^a Total scores of the PCL-5 range from 0 to 80 (higher scores indicate greater severity of PTSD symptoms). PCL-5 was self-reported by participants at first login to the REPAIR web portal before starting treatment / waiting period.

^b Total scores of BSI-18 range from 0 to 72 (higher scores indicate greater severity of symptoms). BSI-18 was self-reported by participants at first login to the REPAIR web portal before starting treatment / waiting period.

^c RAS mean scores range from 1 to 7 (higher scores represent higher relationship satisfaction). RAS was self-reported by participants at first login to the REPAIR web portal before starting treatment / waiting period.

^d Total scores of EQ-5D-5L range from -0,661 to 1 (lower scores indicating worse quality of life), anchored at 0 (death) and 1 (perfect health). EQ-5D-5L was self-reported by participants at first login to the REPAIR web portal before starting treatment / waiting period.

Table S3. Outcomes of participants with presumptive PTSD diagnosis - overall as well as stratified by post-ICU patient/spouse status and by treatment group.

Outcome	# participants with missing values	Post-ICU patient			Spouse		
		Overall (<i>n</i> = 21)	Treatment group		Overall (<i>n</i> = 13)	Treatment group	
			iCBT (<i>n</i> = 10)	WL control (<i>n</i> = 11)		iCBT (<i>n</i> = 6)	WL control (<i>n</i> = 7)
PCL-5^a; median (Q1, Q3)							
Change from t0 to t1	5	8 (5, 11)	8 (6, 12)	8 (4, 10)	2 (-2, 5)	5 (4, 5)	-2 (-4, 2)
Screening	0	38 (37, 51)	40 (36, 51)	38 (37, 48)	38 (35, 41)	39 (36, 40)	36 (35, 43)
t0	1	42 (31, 50)	37 (29, 42)	45 (36, 51)	26 (23, 33)	26 (24, 36)	29 (21, 32)
t1	5	36 (21, 44)	34 (19, 40)	36 (24, 44)	21 (18, 33)	21 (16, 22)	21 (18, 35)
t1+	4	-	-	24 (17, 28)	-	-	12 (11, 12)
BSI-18^b; median (Q1, Q3)							
Change from t0 to t1	5	3 (-2, 5)	4 (3, 8)	0 (-2, 4)	-1 (-3, 2)	1 (-3, 2)	-1 (-8, 2)
t0	1	22 (16, 28)	22 (16, 24)	23 (14, 30)	15 (11, 22)	14 (12, 18)	18 (8, 22)
t1	5	19 (10, 27)	14 (10, 23)	21 (14, 28)	12 (8, 28)	9 (9, 17)	13 (9, 29)
t1+	4	-	-	16 (10, 20)	-	-	7 (4, 7)
RAS^c; median (Q1, Q3)							
Change from t0 to t1	5	0 (0, 1)	1 (1, 1)	0 (-1, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
t0	1	2 (2, 3)	2 (2, 4)	2 (2, 2)	2 (2, 4)	3 (2, 4)	2 (2, 2)
t1	5	2 (1, 3)	1 (1, 2)	2 (1, 3)	2 (2, 4)	4 (1, 4)	2 (2, 3)

t1+	4	-	-	2 (2, 2)	-	-	2 (1, 3)
EQ-5D-5L ^d ; median (Q1, Q3)							
Change from t0 to t1	5	0.00 (-0.07, 0.09)	-0.01 (-0.06, 0.07)	0.00 (-0.09, 0.13)	0.02 (-0.04, 0.09)	0.01 (-0.04, 0.03)	0.09 (-0.02, 0.16)
t0	1	0.56 (0.37, 0.73)	0.51 (0.42, 0.73)	0.61 (0.34, 0.74)	0.82 (0.73, 0.89)	0.84 (0.81, 0.87)	0.82 (0.66, 0.95)
t1	5	0.60 (0.31, 0.80)	0.63 (0.35, 0.76)	0.56 (0.31, 0.79)	0.82 (0.62, 0.87)	0.84 (0.80, 0.86)	0.81 (0.47, 0.89)
t1+	4	-	-	0.77 (0.66, 0.79)	-	-	0.91 (0.86, 0.91)
PTSD; <i>n</i> (%)							
t0	0	15 (71.4%)	9 (90.0%)	6 (54.5%)	10 (76.9%)	5 (83.3%)	5 (71.4%)
t1	5	10 (55.6%)	1 (14.3%)	9 (81.8%)	3 (27.3%)	0 (0.0%)	3 (42.9%)
Remission from t0 to t1*	4	5 (41.7%)	5 (83.3%)	0 (0.0%)	7 (77.8%)	4 (100.0%)	3 (60.0%)

The overall number of treated individuals (*n*) are provided. Outcomes are summarised as median with first and third quartile (Q1, Q3) or as absolute (*n*) and relative frequency (%). Percentages refer to number of participants with information for the respective value; number of participants with missing values are provided. Values are provided for several time points: t0, start of intervention (iCBT group) / waiting (WL control group); t1, end of intervention (iCBT group) / waiting (WL control group); t1+, end of intervention in WL control group. Abbreviations: -, not applicable; #, number of; ; BSI-18, Brief Symptom Inventory-18; CAPS-5, Clinician-Administered PTSD Scale for DSM-5; EQ-5D-5L, Health questionnaire of the EuroQol group in five dimensions with five levels; iCBT, internet-based cognitive-behavioural writing therapy; ICU, intensive care unit; PCL-5, PTSD Checklist for DSM-5; PTSD, post-traumatic stress disorder; RAS, Relationship Satisfaction Scale; WL, waitlist.

* Both percentage and number of missing values refer to number of participants with PTSD at t0.

^a Total scores of the PCL-5 range from 0 to 80 (higher scores indicate greater severity of PTSD symptoms). PCL-5 was self-reported by participants at first login to the REPAIR web portal before starting treatment / waiting period.

- ^b Total scores of BSI-18 range from 0 to 72 (higher scores indicate greater severity of symptoms). BSI-18 was self-reported by participants at first login to the REPAIR web portal before starting treatment / waiting period.
- ^c RAS mean scores range from 1 to 7 (higher scores represent higher relationship satisfaction). RAS was self-reported by participants at first login to the REPAIR web portal before starting treatment / waiting period.
- ^d Total scores of EQ-5D-5L range from -0,661 to 1 (lower scores indicating worse quality of life), anchored at 0 (death) and 1 (perfect health). EQ-5D-5L was self-reported by participants at first login to the REPAIR web portal before starting treatment / waiting period.

Table S4. Results for PCL-5 (PTSD Checklist for DSM-5) change from generalised estimating equation (GEE) modelling.

Variable	ITT (best-case/worst-case)		ITT (MICE)		PP	
	Mean difference (95% CI)	<i>p</i> -value	Mean difference (95% CI)	<i>p</i> -value	Mean difference (95% CI)	<i>p</i> -value
<i>Multivariable models I</i>						
iCBT [ref.: no]	-0.96 (-5.88, 3.97)	0.703	4.01 (-1.89, 9.91)	0.181	2.40 (-2.29, 7.08)	0.316
Baseline value (t0)	0.09 (-0.05, 0.23)	0.225	0.16 (-0.02, 0.33)	0.078	0.10 (-0.03, 0.23)	0.123
<i>Multivariable models II</i>						
iCBT [ref.: no]	-1.80 (-5.90, 2.30)	0.390	3.74 (-2.15, 9.64)	0.212	1.53 (-2.79, 5.84)	0.488
Both suffering from PTSD [ref.: no]	0.06 (-0.09, 0.20)	0.445	0.14 (-0.03, 0.30)	0.098	0.09 (-0.03, 0.21)	0.154
Baseline value (t0)	-1.80 (-5.90, 2.30)	0.390	3.74 (-2.15, 9.64)	0.212	1.53 (-2.79, 5.84)	0.488
<i>Multivariable models III</i>						
iCBT [ref.: no]	-0.21 (-3.99, 3.57)	0.913	5.90 (0.05, 11.75)	0.048	4.11 (0.66, 7.55)	0.019
Both suffering from PTSD [ref.: no]	0.04 (-0.15, 0.22)	0.700	0.06 (-0.15, 0.26)	0.579	0.04 (-0.09, 0.17)	0.555
Baseline value (t0)	-0.21 (-0.48, 0.06)	0.134	-0.36 (-0.71, -0.02)	0.04	-0.31 (-0.60, -0.02)	0.034
Age, in years	0.80 (-4.84, 6.45)	0.780	3.03 (-2.67, 8.72)	0.297	2.34 (-3.15, 7.82)	0.404
Post-ICU patient [ref.: no]	-3.94 (-7.75, -0.13)	0.043	-1.32 (-6.44, 3.79)	0.611	-3.37 (-7.29, 0.55)	0.092
Pre-existing mental disorder [ref.: no]	-0.21 (-3.99, 3.57)	0.913	5.90 (0.05, 11.75)	0.048	4.11 (0.66, 7.55)	0.019

Model coefficients (mean difference) together with 95% confidence intervals (CIs) and *p*-values are provided. Positive values indicate effects in favour of iCBT. Results from both intention-to-treat (ITT) approaches (best-case/worst-case as main analysis, multiple imputation by chained equations (MICE) as sensitivity analysis) and the per-protocol (PP) analyses (sensitivity analysis) are provided. For binary variables, the reference category (ref.) is provided. Note that there were five participants in the iCBT group and none in the waitlist control group with missing information (missing PCL-5 change: 5, missing baseline value: 1; Supplemental Digital Content 1, Additional Figures A3 and A4). Abbreviations: iCBT, internet-based cognitive-behavioural writing therapy; ICU, intensive care unit; PTSD, post-traumatic stress disorder; t0, time point at beginning of intervention/waiting.

Table S5. Results for RAS (Relationship Satisfaction Scale) change from generalised estimating equation (GEE) modelling.

Variable	ITT (best-case/worst-case)		ITT (MICE)		PP	
	Mean difference (95% CI)	<i>p</i> -value	Mean difference (95% CI)	<i>p</i> -value	Mean difference (95% CI)	<i>p</i> -value
<i>Multivariable models I</i>						
iCBT [ref.: no]	1.11 (0.64, 1.57)	<0.001	0.72 (0.19, 1.26)	0.008	0.80 (0.23, 1.37)	0.006
Baseline value (t0)	0.12 (-0.07, 0.32)	0.214	-0.01 (-0.27, 0.25)	0.933	0.07 (-0.20, 0.34)	0.604
<i>Multivariable models II</i>						
iCBT [ref.: no]	1.43 (0.76, 2.10)	<0.001	0.72 (0.19, 1.25)	0.008	0.91 (0.45, 1.38)	<0.001
Both suffering from PTSD [ref.: no]	0.03 (-0.19, 0.25)	0.774	0.00 (-0.25, 0.26)	0.991	0.15 (-0.05, 0.36)	0.142
Baseline value (t0)	1.43 (0.76, 2.10)	<0.001	0.72 (0.19, 1.25)	0.008	0.91 (0.45, 1.38)	<0.001
<i>Multivariable models III</i>						
iCBT [ref.: no]	1.23 (0.92, 1.53)	<0.001	0.87 (0.36, 1.39)	0.001	1.05 (0.66, 1.44)	<0.001
Both suffering from PTSD [ref.: no]	0.11 (-0.01, 0.24)	0.079	0.05 (-0.16, 0.26)	0.643	0.10 (-0.07, 0.28)	0.255
Baseline value (t0)	-0.01 (-0.03, 0.01)	0.332	-0.01 (-0.04, 0.02)	0.494	-0.01 (-0.03, 0.02)	0.619
Age, in years	0.67 (0.14, 1.20)	0.013	0.49 (-0.04, 1.02)	0.069	0.68 (0.12, 1.24)	0.018
Post-ICU patient [ref.: no]	-0.07 (-0.30, 0.15)	0.528	-0.22 (-0.69, 0.26)	0.369	-0.15 (-0.48, 0.17)	0.353
Pre-existing mental disorder [ref.: no]	1.23 (0.92, 1.53)	<0.001	0.87 (0.36, 1.39)	0.001	1.05 (0.66, 1.44)	<0.001

Model coefficients (mean difference) together with 95% confidence intervals (CIs) and *p*-values are provided. Negative values indicate effects in favour of iCBT. Results from both intention-to-treat (ITT) approaches (best-case/worst-case as main analysis, multiple imputation by chained equations (MICE) as sensitivity analysis) and the per-protocol (PP) analyses (sensitivity analysis) are provided. For binary variables, the reference category (ref.) is provided. Note that there were five participants in the iCBT group and none in the waitlist control group with missing information (missing RAS change: 5, missing baseline value: 1; Supplemental Digital Content 1, Additional Figures A3 and A4). Abbreviations: iCBT, internet-based cognitive-behavioural writing therapy; ICU, intensive care unit; PTSD, post-traumatic stress disorder; t0, time point at beginning of intervention/waiting.

Table S6. Results for remission from generalised estimating equation (GEE) modelling.

Variable	ITT (best-case/worst-case)		ITT (MICE)		PP	
	OR (95% CI)	<i>p</i> -value	OR (95% CI)	<i>p</i> -value	OR (95% CI)	<i>p</i> -value
<i>Multivariable models I</i>						
iCBT [ref.: no]	4.28 (0.89, 20.65)	0.070	4.28 (0.89, 20.65)	0.070	21.97 (2.22, 217.80)	0.008
<i>Multivariable models II</i>						
iCBT [ref.: no]	4.05 (0.80, 20.45)	0.090	4.05 (0.80, 20.45)	0.090	35.33 (3.40, 367.00)	0.003
Both suffering from PTSD [ref.: no]	0.74 (0.14, 3.98)	0.728	0.74 (0.14, 3.98)	0.728	3.37 (0.32, 35.68)	0.314

Note that results are based on those dyad members with PTSD diagnosis according to CAPS-5 at t0 (iCBT: 14 participants, WL: 11 participants; Supplemental Digital Content 2, Supplemental Table S2). Furthermore, all former ICU patients with remission were treated and in each dyad comprising a spouse without remission was a former ICU patient with PTSD. Odds ratios (OR) together with 95% confidence intervals (CIs) and *p*-values are provided. Results from both intention-to-treat (ITT) approaches (best-case/worst-case as main analysis, multiple imputation by chained equations (MICE) as sensitivity analysis) and the per-protocol (PP) analyses (sensitivity analysis) are provided. For binary variables, the reference category (ref.) is provided. Note that there were four participants in the iCBT group and none in the waitlist control group with missing information on remission (Supplemental Digital Content 2, Supplemental Table A3 and A4). Furthermore, the multivariable models III were not applied – due to the small sample size. Abbreviations: iCBT, internet-based cognitive-behavioural writing therapy; ICU, intensive care unit; PTSD, post-traumatic stress disorder; t0, time point at beginning of intervention/waiting.

Table S7. Results for BSI-18 (Brief Symptom Inventory-18) change from generalised estimating equation (GEE) modelling.

Variable	ITT (best-case/worst-case)		ITT (MICE)		PP	
	Mean difference (95% CI)	<i>p</i> -value	Mean difference (95% CI)	<i>p</i> -value	Mean difference (95% CI)	<i>p</i> -value
<i>Multivariable models I</i>						
iCBT [ref.: no]	0.26 (-4.70, 5.21)	0.919	4.36 (-1.58, 10.30)	0.149	3.24 (-1.49, 7.97)	0.180
Baseline value (t0)	-0.09 (-0.25, 0.07)	0.279	0.00 (-0.20, 0.20)	0.978	-0.05 (-0.19, 0.10)	0.534
<i>Multivariable models II</i>						
iCBT [ref.: no]	-0.29 (-4.71, 4.14)	0.899	4.21 (-1.74, 10.16)	0.164	2.59 (-1.45, 6.64)	0.209
Both suffering from PTSD [ref.: no]	-0.12 (-0.26, 0.02)	0.088	-0.02 (-0.23, 0.18)	0.823	-0.07 (-0.21, 0.07)	0.329
Baseline value (t0)	-0.29 (-4.71, 4.14)	0.899	4.21 (-1.74, 10.16)	0.164	2.59 (-1.45, 6.64)	0.209
<i>Multivariable models III</i>						
iCBT [ref.: no]	0.01 (-4.08, 4.10)	0.996	5.20 (-0.87, 11.27)	0.092	2.84 (-1.28, 6.96)	0.176
Both suffering from PTSD [ref.: no]	-0.10 (-0.26, 0.06)	0.234	-0.02 (-0.25, 0.21)	0.846	-0.07 (-0.23, 0.10)	0.435
Baseline value (t0)	0.05 (-0.22, 0.32)	0.738	-0.08 (-0.44, 0.29)	0.678	0.05 (-0.32, 0.41)	0.800
Age, in years	2.03 (-3.88, 7.94)	0.500	2.91 (-4.16, 9.97)	0.419	4.00 (-2.41, 10.40)	0.221
Post-ICU patient [ref.: no]	-3.94 (-8.54, 0.67)	0.094	-2.91 (-8.91, 3.10)	0.342	-3.28 (-8.77, 2.20)	0.241
Pre-existing mental disorder [ref.: no]	0.01 (-4.08, 4.10)	0.996	5.20 (-0.87, 11.27)	0.092	2.84 (-1.28, 6.96)	0.176

Model coefficients (mean difference) together with 95% confidence intervals (CIs) and *p*-values are provided. Positive values indicate effects in favour of iCBT. Results from both intention-to-treat (ITT) approaches (best-case/worst-case as main analysis, multiple imputation by chained equations (MICE) as sensitivity analysis) and the per-protocol (PP) analyses (sensitivity analysis) are provided. For binary variables, the reference category (ref.) is provided. Note that there were five participants in the iCBT group and none in the waitlist control group with missing information (missing BSI-18 change: 5, missing baseline value: 1; Supplemental Digital Content 1, Additional Figures A3 and A4). Abbreviations: iCBT, internet-based cognitive-behavioural writing therapy; ICU, intensive care unit; PTSD, post-traumatic stress disorder; t0, time point at beginning of intervention/waiting.

Table S8. Results for EQ-5D-5L (Health questionnaire of the EuroQol group in five dimensions with five levels) change in utility values from generalised estimating equation (GEE) modelling.

Variable	ITT (best-case/worst-case)		ITT (MICE)		PP	
	Mean difference (95% CI)	<i>p</i> -value	Mean difference (95% CI)	<i>p</i> -value	Mean difference (95% CI)	<i>p</i> -value
<i>Multivariable models I</i>						
iCBT [ref.: no]	0.04 (-0.07, 0.15)	0.499	-0.02 (-0.17, 0.13)	0.805	-0.01 (-0.12, 0.09)	0.777
Baseline value (t0)	0.19 (-0.07, 0.46)	0.150	0.27 (-0.02, 0.57)	0.065	0.24 (-0.07, 0.55)	0.133
<i>Multivariable models II</i>						
iCBT [ref.: no]	0.04 (-0.07, 0.15)	0.494	-0.02 (-0.18, 0.14)	0.800	-0.03 (-0.14, 0.09)	0.666
Both suffering from PTSD [ref.: no]	0.01 (-0.11, 0.14)	0.844	-0.02 (-0.16, 0.12)	0.775	-0.04 (-0.18, 0.09)	0.537
Baseline value (t0)	0.19 (-0.08, 0.45)	0.168	0.28 (0.00, 0.57)	0.050	0.27 (-0.04, 0.57)	0.091
<i>Multivariable models III</i>						
iCBT [ref.: no]	-0.01 (-0.11, 0.09)	0.865	-0.07 (-0.23, 0.09)	0.389	-0.07 (-0.18, 0.03)	0.172
Suffering from PTSD [ref.: no]	0.01 (-0.10, 0.11)	0.925	-0.02 (-0.15, 0.11)	0.772	-0.05 (-0.16, 0.06)	0.416
Baseline value (t0)	0.30 (-0.05, 0.64)	0.089	0.36 (-0.01, 0.73)	0.058	0.33 (-0.06, 0.71)	0.095
Age, in years	0.00 (0.00, 0.01)	0.424	0.00 (0.00, 0.01)	0.318	0.00 (0.00, 0.01)	0.375
Post-ICU patient [ref.: no]	0.05 (-0.12, 0.22)	0.553	0.04 (-0.15, 0.24)	0.671	0.02 (-0.16, 0.20)	0.811
Pre-existing mental disorder [ref.: no]	0.13 (0.02, 0.24)	0.018	0.10 (-0.03, 0.23)	0.124	0.11 (-0.01, 0.22)	0.064

Model coefficients (mean difference) together with 95% confidence intervals (CIs) and *p*-values are provided. Negative values indicate effects in favour of iCBT. Results from both intention-to-treat (ITT) approaches (best-case/worst-case as main analysis, multiple imputation by chained equations (MICE) as sensitivity analysis) and the per-protocol (PP) analyses (sensitivity analysis) are provided. For binary variables, the reference category (ref.) is provided. Note that there were five participants in the iCBT group and none in the waitlist control group with missing information (missing EQ-5D-5L change: 5, missing baseline value: 1; Supplemental Digital Content 1, Additional Figures A3 and A4). Abbreviations: iCBT,

internet-based cognitive-behavioural writing therapy; ICU, intensive care unit; PTSD, post-traumatic stress disorder; t0, time point at beginning of intervention/waiting.

Table S9. Between-group effect sizes (Cohen's *d*, standardised mean differences) for pre-post changes in primary and secondary outcomes.

Variable	ITT (best-case/worst-case)	ITT (MICE)	PP
	<i>d</i> (95% CI)	<i>d</i> (95% CI)	<i>d</i> (95% CI)
<i>Primary outcome</i>			
PCL-5	-0.14 (-0.81, 0.54)	0.48 (-0.21, 1.16)	0.40 (-0.35, 1.16)
<i>Secondary outcomes</i>			
RAS	-1.67 (-2.45, -0.89)	-0.94 (-1.65, -0.23)	-1.10 (-1.90, -0.30)
BSI-18	0.04 (-0.64, 0.71)	0.51 (-0.17, 1.20)	0.54 (-0.22, 1.30)
EQ-5D-5L	-0.25 (-0.93, 0.42)	0.09 (-0.58, 0.77)	0.07 (-0.68, 0.83)

Effect sizes with 95% confidence intervals (CI) were derived from the main analyses with generalised estimating equation (GEE) modelling (Multivariable models I; Table 2, Supplemental Tables S5, S7, S8 in Supplemental Digital Content 2). Positive values indicate effects in favour of iCBT. Abbreviations: BSI-18, Brief Symptom Inventory-18; *d*, between-group effect size Cohen's *d*; EQ-5D-5L, Health questionnaire of the EuroQol group in five dimensions with five levels; ITT, intention-to-treat; PCL-5, PTSD Checklist for DSM-5; PP, per protocol RAS, Relationship Satisfaction Scale.

Table S10. Within-group effect sizes (Cohen's *d*, standardised mean differences) in iCBT and WL control group for pre-post changes in primary and secondary outcomes – stratified by presumptive PTSD diagnosis at t0.

Treatment group	Participants with presumptive PTSD diagnosis at t0						Participants without presumptive PTSD diagnosis at t0			
	Screening > t0		t0 > t1		t1 > t1+		Screening > t0		t0 > t1	
	<i>N</i>	<i>d</i> (95% CI)	<i>N</i>	<i>d</i> (95% CI)	<i>N</i>	<i>d</i> (95% CI)	<i>N</i>	<i>d</i> (95% CI)	<i>N</i>	<i>d</i> (95% CI)
<i>Primary outcome: PCL-5</i>										
iCBT group	15	0.42 (-0.17, 0.92)	11	0.43 (0.37, 1.98)	-	-	8	-0.26 (-1.31, 0.27)	6	0.30 (0.16, 2.61)
WL control group	18	0.43 (-0.07, 0.92)	18	0.35 (0.13, 1.17)	14	1.01 (0.60, 2.11)	8	-0.36 (-1.08, 0.44)	6	-0.04 (-0.93, 0.82)
<i>Secondary outcome: RAS</i>										
iCBT group	-	-	11	-0.42 (-1.30, 0.06)	-	-	-	-	5	-1.07 (-2.84, -0.05)
WL control group	-	-	18	0.14 (-0.09, 0.89)	14	-0.24 (-1.02, 0.13)	-	-	5	0.17 (-0.43, 1.74)
<i>Secondary outcome: BSI-18</i>										
iCBT group	-	-	11	0.17 (-0.27, 1.01)	-	-	-	-	6	0.47 (-0.25, 1.74)
WL control group	-	-	18	-0.09 (-0.64, 0.32)	14	0.77 (0.08, 1.29)	-	-	6	0.05 (-0.81, 0.94)
<i>Secondary outcome: EQ-5D-5L</i>										
iCBT group	-	-	11	-0.05 (-0.78, 0.46)	-	-	-	-	6	0.23 (-0.13, 1.95)
WL control group	-	-	18	-0.14 (-0.63, 0.33)	14	0.71 (0.28, 1.59)	-	-	6	-0.10 (-1.06, 0.70)

Effect sizes (Cohen's *d*) with 95% confidence intervals (CI) are based on unadjusted means of the per-protocol population. Positive values indicate improvement to the subsequent time points (e.g., pre > post). Number of participants (*N*) with data at the respective compared time points are provided. Results are stratified for participants with / without presumptive PTSD diagnosis according to PCL-5 at t0 (PCL-5 > 35). Pre-post effect sizes for iCBT treatment are marked bold. Abbreviations: -, not applicable; BSI-18, Brief Symptom Inventory-18; *d*, effect size Cohen's *d*; EQ-5D-5L, Health questionnaire of the EuroQol group in five dimensions with five levels; iCBT, internet-based cognitive-behavioural writing therapy; PCL-5, PTSD Checklist for DSM-5; PTSD, post-traumatic stress disorder; RAS, Relationship Assessment Scale; WL, waitlist; t0, start of intervention (iCBT group) / waiting (WL control group); t1, end of intervention (iCBT group) / waiting and beginning of intervention (WL control group); t1+ end of delayed intervention (WL control group).

Table S11. Number of participants with clinically relevant improvement in PCL-5 (i.e., improvement of at least 10 points) - stratified by treatment group and presumptive PTSD diagnosis at t0.

	Screening > t0	t0 > t1	t1 > t1+
<i>Participants with presumptive PTSD diagnosis at t0</i>			
iCBT group	5 / 15 (33.3%)	3 / 11 (27.3%)	-
WL control group	9 / 18 (50.0%)	5 / 18 (27.8%)	8 / 14 (57.1%)
<i>Participants without PTSD diagnosis at t0</i>			
iCBT group	0 / 8 (0.0%)	2 / 6 (33.3%)	-
WL control group	0 / 8 (0.0%)	1 / 6 (16.7%)	-

Number of participants with improvement to the subsequent time point (e.g., pre > post) as well as number of participants with data at the respective compared time points are provided (n / N) – accompanied by the respective relative frequency. Results are stratified for participants with / without presumptive PTSD diagnosis according to PCL-5 at t0 (PCL-5 > 35). Improvements during iCBT are marked bold. Abbreviations: -, not applicable; iCBT, internet-based cognitive-behavioural writing therapy; PCL-5, PTSD Checklist for DSM-5; PTSD, post-traumatic stress disorder; WL, waitlist; t0, start of intervention (iCBT group) / waiting (WL control group); t1, end of intervention (iCBT group) / waiting and beginning of intervention (WL control group); t1+ end of delayed intervention.

Table S12. Overview about safety variables - overall as well as stratified by treatment group.

Variable	Overall (<i>n</i> = 34)	Treatment group	
		iCBT (<i>n</i> = 16)	WL control (<i>n</i> = 18)
Number of suicide alerts			
False alarm; <i>n</i>	3	3	0
Caused by reasons not related to the study; <i>n</i>	2	0	2
Clinical relevant PCL-5 deterioration; <i>n</i> (%) [*]	0 (0.0%)	0 (0.0%)	0 (0.0%)
Premature termination			
Between randomisation and t0; <i>n</i> (%)	1 (2.9%)	1 (6.3%)	0 (0.0%)
Between t0 and t1; <i>n</i> (%)	8 (23.5%)	6 (37.5%)	2 (11.1%)
Between t1 and t1+; <i>n</i> (%)	-	-	10 (55.6%)

The overall number of treated individuals (*n*) are provided. A PCL-5 (PTSD Checklist for DSM-5) change of 10 or more points is regarded as clinically relevant. Outcomes are summarised as absolute (*n*) and relative frequencies (%). Percentages refer to number of participants with information for the respective value. Values are provided for several time points: t0, start of intervention (iCBT group) / waiting (WL control group); t1, end of intervention (iCBT group) / waiting (WL control group); t1+, end of intervention in WL control group. Abbreviations: -, not applicable; iCBT, internet-based cognitive-behavioural writing therapy; WL, waitlist.

^{*} missing for 9 participants (iCBT: 7 participants (post-ICU patient: 4, spouse: 3), WL control: 2 participants (spouse: 2))

Table S13. Overview about safety variables - overall as well as stratified by post-ICU patient/spouse status and by treatment group.

Variable	Post-ICU patient			Spouse		
	Overall (<i>n</i> = 21)	Treatment group		Overall (<i>n</i> = 13)	Treatment group	
		iCBT (<i>n</i> = 10)	WL control (<i>n</i> = 11)		iCBT (<i>n</i> = 6)	WL control (<i>n</i> = 7)
Number of suicide alerts						
False alarm; <i>n</i>	2	2	0	1	1	0
Caused by reasons not related to the study; <i>n</i>	2	0	2	0	0	0
Clinical relevant PCL-5 deterioration; <i>n</i> (%) [*]	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Premature termination						
Between randomisation and t0; <i>n</i> (%)	1 (4.8%)	1 (10.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Between t0 and t1; <i>n</i> (%)	3 (14.3%)	3 (30.0%)	0 (0.0%)	5 (38.5%)	3 (50.0%)	2 (28.6%)
Between t1 and t1+; <i>n</i> (%)	-	-	4 (36.4%)	-	-	6 (85.7%)

The overall number of treated individuals (*n*) are provided. A PCL-5 (PTSD Checklist for DSM-5) change of 10 or more points is regarded as clinically relevant. Outcomes are summarised as absolute (*n*) and relative frequencies (%). Percentages refer to number of participants with information for the respective value. Values are provided for several time points: t0, start of intervention (iCBT group) / waiting (WL control group); t1, end of intervention (iCBT group) / waiting (WL control group); t1+, end of intervention in WL control group. Abbreviations: -, not applicable; iCBT, internet-based cognitive-behavioural writing therapy; ICU, intensive care unit; WL, waitlist.

^{*} missing for 9 patients (intervention: 7 participants (former ICU patient: 4, spouse: 3), waitlist: 2 participants (spouse: 2))

Table S14. Dyadic concordance in treatment effects in terms of PCL-5 (PTSD Checklist for DSM-5) change.

Dyad member suffering from PTSD	ITT (best-case/worst-case)	ITT (MICE)	PP
Only one	0.29 (-0.24, 0.68)	0.43 (-0.06, 0.92)	0.32 (-0.31, 0.76)
Both	-0.25 (-0.79, 0.49)	-0.06 (-0.95, 0.84)	-0.58 (-0.95, 0.44)

Spearman correlation together with 95% confidence intervals are provided. Analysis was stratified by the number of dyad members suffering from post-traumatic stress disorder (PTSD). Results from both intention-to-treat (ITT) approaches (best-case/worst-case substitution as main analysis, multiple imputation by chained equations (MICE) as sensitivity analysis) and the per-protocol (PP) analyses are provided. Note that there were nine participants with missing information on PCL-5 change (Supplemental Digital Content 1, Additional Figures A1 and A2).