Supplementary materials 2 *Support for the relation between CBT-procedures and learning processes, learning processes and CBT treatment processes, and learning processes and CBT outcome*

Study characteristics and main findings						
	Study	Design	Sample (n)	CBT doses	Main findings	Level of evidence
CBT-procedures and learning processes						
Cognitive processes	Groves et al., 2015	RCT	Depressed participants were randomized to 12 weeks of metacognitive therapy (MCT) (n=23) or CBT (n=25)	8 - 15 45-minute sessions	From baseline - week 4 sustained attention and spatial problem solving improved in both groups. From baseline - week 12 errors in spatial problem solving reduced in the MCT group but not the CBT group, while verbal fluency and visual sustained attention improved in both groups. Analyses controlled for baseline depression severity and cognitive performance and there were no significant correlations between change in depression and change in cognitive task performance.	II
	Beard et al., 2015	Prospective cohort study without control group	32 patients with a mood disorder: major depressive disorder (n=21), bipolar I disorder (n=5), bipolar II disorder (n=2) and mood disorder not otherwise specified (n=4) receiving CBT + medication	Five 50-min group sessions each day and 2–3 weekly individual sessions in an average of 8 days	Post-error, but not post-correct, accuracy on an arrow flanker task improved with treatment. Reaction times were faster after treatment.	IV
	Pearson et al., 2013	RCT	Pregnant women with MDD randomized into CBT (n=12) or usual care (n=12). A non-depressed comparison group (n=51) was included.	9 to 12 individual sessions	Depressed women in both arms showed a diminished attentional bias for infant distress compared to a non-depressed comparison group. Following intervention attentional biases of women who received CBT increased becoming comparable to non-depressed women. There was no improvement in the usual care arm. There was a strong negative correlation between change in attentional bias and change in depression, but not in the CBT group (greater reduction in depression is related to greater increase of attentional bias towards infant distress).	II

	Hummel et al., 2017	RCT	Depressed elder (age > 65) randomized into CBT (n=56) versus waiting list control group with usual care (n=99)	15 weekly 90-minute group sessions (first and last session individual)	Cognitive functioning (measured with Mini-Mental State Examination) improved after CBT compared to the control group. Cognitive functioning at discharge was related to depression.	I
	Spinhoven et al., 2006	RCT	Participants with MDD in remission allocated to group CT + TAU (*n*=60) or TAU (n=56)	8 sessions	Additional group CT did not differentially affect memory specificity.	I
Neurobiological processes	Yoshimura et al., 2017	Prospective cohort study with control group	29 patients with MDD and 15 healthy control participants	12 weekly, 90 min group CBT sessions; 15 patients also received antidepressants	CBT was associated with reduced functional connectivity between the medial prefrontal cortex (MPFC) and anterior cingulate cortex (ACC). Symptom change with CBT was positively correlated with change in MPFC-ACC functional connectivity.	III
	Gawrysiak et al., 2012	Case study	1 patient with depression and breast cancer	8 one-hour sessions of BA	The patient exhibited attenuated depression and changes in blood oxygenation level dependence (BOLD) response in regions of the prefrontal cortex and the subgenual cingulate cortex.	V
	Yokoyama et al., 2017	RCT	Participants with subthreshold depression randomized to BA (n=19) or no BA (n=21)	Five weekly 60-minute sessions	Functional connectivity of the anterior DMN subnetwork (aDMN) with the dorsal anterior cingulate (dACC) was reduced after BA. Negative correlations between reduction in aDMN-dACC functional connectivity and quality of life and health status but not with change in depression after controlling for depression scores.	II
	Dichter et al., 2009	Prospective cohort study with control group	Twelve adults with and 15 adults without MDD	11.4 (SD=2.0) weekly sessions BA	Relative to changes in the non-depressed group, BA resulted in functional changes in brain structures that mediate responses to reward. There were no effects on task-related behavioral responses.	III

Gollan et al., 2014	Prospective cohort study with control group	Depressed (n=37) receiving BA versus healthy participants (n=35)	16 weekly sessions	Alpha electroencephalogram (EEG) asymmetry, assumed to be involved in approach- and withdrawal-related motivation did not change from pre- to post treatment while depressive symptoms were reduced at post-treatment.	III
Shou et al., 2017	Prospective cohort study with control group	35 patients with MDD or PTSD + matched healthy control group (n=18)	12 sessions of manualized CBT (for MDD) or cognitive processing therapy (CPT; for PTSD) over a 12-week period	The pattern of dysconnectivity between the amygdala connectivity with the frontoparietal network was normalized in response to treatment across MDD and PTSD.	III
Kennedy et al., 2007	RCT	Depressed patients randomized into CBT (n=12) or Venlafaxine (n=12)	12-16 weekly sessions	CBT response differed from venlafaxine response in that it was associated with less activity in the posterior cingulate and thalamus, increased activity in the left inferior temporal cortex, anterior portion of the subgenual cingulate/ ventromedial frontal cortex and right occipital-temporal cortex. CBT response differed from Venlafaxine nonresponse in that it was associated with decrease of activity in the thalamus, putamen, dorsomedial and dorsolateral prefrontal cortices and the posterior thalamus.	II
Goldapple, Segal, Garson, & Lau, 2004	Prospective cohort study with control group	17 CBT-treated vs. 13 paroxetine-treated patients	15-20 sessions	CBT response was associated with increases in activity in the hippocampus and dorsal cingulate and activity decrease in dorsal, ventral, and medial frontal cortex while increase in the prefrontal areas and decrease in the hippocampal and subgenual cingulate areas were seen in the paroxetine-treated patients. Covarying for depression scores nullified the effects.	III
Ritchey, Dolcos, Eddington, Strauman, & Cabezza, 2011	Prospective cohort study with control group	11 depressed patients vs. 14 controls	Twenty 50-minute sessions	CBT response was associated with increases in ventromedial prefrontal cortex activation, enhanced arousal responses in the amygdala, caudate, hippocampus, and positive valence-related activity in the anterior temporal lobe.	III

	Fu et al., 2008	Prospective cohort study with control group	16 depressed patients vs. 16 matched healthy volunteers	16 sessions	Normalization of amygdala-hippocampal activity following CBT. In addition, patients showed an increase in activity in the area of the dorsal anterior cingulate extending to the parietal cortex, the superior frontal gyrus, inferior parietal cortex, and precuneus to a level comparable with the load-response in the healthy controls at baseline. Load-response activity in the fusiform and lingual gyri, left lateral temporal and inferior parietal cortices, posterior cingulate cortex, precuneus, and cerebellum was greater at baseline compared to healthy controls but decreased following CBT to a level comparable with the load-response in the healthy controls at baseline.	III
	Yang et al., 2018	Prospective cohort study with control group	28 patients with MDD, 53 patients with PTSD and 23 healthy control subjects: in this group 17 patient with MDD and 34 patients with PTSD volunteered in CBT	12 sessions	Following CBT, regions within the cognitive control network, including ventrolateral and dorsolateral prefrontal cortex showed a significant increase in activity. No significant correlations were found between these changes in brain activation and changes in depressive symptoms. Healthy controls did not show changed in brain activity.	III
Learning processes and CBT treatment processes						
Cognitive processes	Sheppard & Teasdale, 2004	Case-control	20 depressed patients, 20 partially remitted depressed patients, and 20 controls	No history of CBT in any participants	Partially remitted patients resembled nondepressed controls in metacognitive monitoring but differed significantly from acutely depressed patients. Partially remitted patients resembled currently depressed patients in the extent to which dysfunctional schemas are accessed but differed significantly from nondepressed controls. DAS latency and semantic decision tasks were used.	III
	Sheppard & Teasdale, 2000	Case-control	30 depressed patients and 30 controls	No history of CBT in any of the participants	Depressed patients show less metacognitive monitoring of dysfunctional thinking compared to controls using a DAS latency decision task.	III

	Wenzlaff & Bates, 1998	Experiment	45 not depressed, 22 at risk and 23 depressive participants	Previous CBT treatment unknown	Cognitive load caused an increase in at-risk participants' production of negative statements on the scrambled sentence test.	I
	Gemar, Segal, Sagrati, & Kennedy, 2001	Case-control	23 formerly depressed and 27 never depressed individuals	Formerly depressed patients previously received CBT or medication	There is no association between measures of dysfunctional thinking and associative processing of negative self-biases as measured with the Implicit Association Test.	III
	Romero, Sanchez, & Vazquez, 2014	Case-control	30 formerly and 40 never depressed individuals	Previous CBT treatment unknown	Higher negative processing under reduced cognitive control and automatic activation of negative meanings using the scrambled sentence test and lexical decision task did predict the proportion of self-endorsed and recalled negative adjectives in formerly depressed, but not in the controls, after controlling for current levels of depression.	III
	Johnco, Wuthrich, & Rapee, 2015	Case-control	47 older adults with anxiety and depression involved in CBT and 53 nonclinical controls	Unknown	Cognitive flexibility (CF) partially mediated the relationship between clinical status and cognitive restructuring (CR) efficacy and between clinical status and CR quality.	III
Neurobiological processes	DelDonno et al., 2017	Case-control	Forty-two individuals with rMDD and 28 healthy controls	Previous CBT treatment unknown	Across groups, ventral striatum (VS), a region highly implicated in reward and motivation, connectivity was related to self-report measures of behavioral activation.	III

Gollan et al., 2014	Case-control	Depressed (n = 37) receiving BA versus healthy participants (n = 35)	16 weekly sessions	At pre-treatment alpha electroencephalogram asymmetry showed a positive correlation with behavioral inhibition and negative affect and an inverse correlation with behavioral activation fun-seeking. At post-treatment, depressed participants with higher frontal alpha EEG asymmetry showed a positive correlation with behavioral inhibition and behavioral avoidance.	III
Sankar et al., 2015	Case-control	16 depressed patients who received CBT vs. 16 matched controls	16 weekly sessions	Extreme attributions on the DAS were related to greater activity in regions (left hippocampal region, inferior parietal lobe and precuneus) associated with attentional processing and memory retrieval in MDD patients compared to healthy controls. Left parahippocampal activation to extreme attributions decreased in both depressed patients and healthy controls at the follow-up scans in both groups but to a lesser extent in patients.	III
Elliott, Sahakian, Michael, Paykel, & Dolan, 1998	Case-control	Six patients with MDD receiving medication and six matched controls	Previous CBT treatment unknown	Compared to controls, response to feedback on cognitive task in patients with unipolar depression is associated with attenuation of activation within a network including the medial caudate nucleus and ventrolateral orbitofrontal cortex, regions implicated in reward mechanisms.	III
Pizzagalli et al., 2009	Case-control	30 unmedicated individuals with MDD and 31 healthy comparison subjects	Previous CBT treatment unknown	Compared to healthy subjects, MDD patients reported reduced positive affect to reward stimuli and less arousal following gains. These findings were mirrored by group differences in basal ganglia responses to rewarding outcomes, as participants with major depression showed weaker responses to gains in the caudate bilaterally and in the left nucleus accumbens. There was less evidence of differences between patients and healthy subjects during reward anticipation.	III
McCabe, Cowen, & Harmer, 2009	Case-control	13 unmedicated recovered patients with a history of major depression and 14 healthy controls matched on age and gender	Previous CBT treatment unknown	Unmedicated recovered depressed patients demonstrate abnormalities in the neural representation of reward to the sight and taste of chocolate (i.e. ventral striatum, caudate nucleus, neural supralinearity response). These impaired neural responses were not attributable to subjective changes in how the reward was anticipated or experienced. The functional magnetic resonance imaging (fMRI) results remained significant when the depression scores were added as a covariate.	III

Knutson, Bhanji, Cooney, Atlas, & Gotlib, 2008	Case-control	14 currently depressed and 12 never-depressed participants	Current and previous CBT treatment unknown	Depressed individuals show similarities to never-depressed CTL participants in their neural (nucleus accumbens (NAcc)) and affective responses to monetary incentives. However, they showed differences compared to never-depressed participants in activation of the anterior cingulate cortex during anticipation of increasing loss or gains and a weaker response to gain outcomes in the mesial prefrontal cortex and dorsal striatal.	III
Smoski et al., 2010	Case-control	16 depressed and 15 control participants	Previous CBT treatment unknown	The MDD group was characterized by reduced activation of striatal reward regions during reward selection, reward anticipation, and reward feedback. Support was not found for hyperresponsivity of cognitive control regions during reward selection or reward anticipation. MDD participants showed hyperresponsivity in orbitofrontal cortex during reward selection and decreased activation of the middle frontal gyrus and the rostral cingulate gyrus during reward selection and anticipation. Activation in bilateral midfrontal gyrus during reward selection was related to depression severity.	III
Tavares et al., 2009	Case-control	13 depressed subjects with major depressive disorder, 12 depressed subjects with bipolar disorder and 15 healthy controls	Current and previous CBT treatment unknown	The MDD subjects showed attenuated prefrontal cortical responses during reversal shifting and failed to deactivate the amygdala in response to misleading feedback relative to positive feedback.	III
Tucker, Luu, Frishkoff, Quiring, & Poulsen, 2003	Case-control	20 MDD patients and 20 controls	Previous CBT treatment unknown	Depressed subjects showed a larger medial frontal negativity for all feedback compared with control subjects with a particularly striking response to the most negative feedback while an exaggerated limbic activity of depressed subjects was seen in response to negative feedback on their performance. The effect was the strongest to patients that were moderately depressed.	III
Santesso et al., 2011	Case-control	12 participants with remitted depression and 15 controls	Previous CBT treatment unknown	Despite equivalent behavioral performance, RD subjects showed larger feedback related negativity using EEG to negative feedback relative to controls; group differences remained after accounting for residual anxiety and depressive symptoms.	III

Chiu, & Deldin, 2007	Case-control	17 nondepressed comparison subjects and 18 depressed individuals	5 depressed patients follc current psychotherapy (type unknown).	Depressed individuals exhibited greater magnitude of error-related negativity and a different response to different incentives compared to nonpsychiatric comparison subjects during a cognitive task related to punishment and reward.	III
Holmes & Pizzagalli, 2008	Case-control	20 unmedicated patients with MDD and 20 demographically matched comparison subjects.	Current and previous CBT treatment unknown.	Relative to comparison subjects, patients with MDD displayed significantly larger error-related negativity and higher density in rostral ACC and medial PFC regions in reaction to committing errors.	III
Ruchsow et al., 2004	Case-control	16 patients with DSM-IV major depressive disorder in remission and 16 matched controls	Current and previous CBT treatment unknown.	Depressed patients showed a smaller feedback ERN/Ne (error-related negativity/error negativity) component following an incorrect response following error trials (but not following correct trials) of a cognitive task.	III
Steele, Meyer, & Ebmeier, 2004	Case-control	15 patients with major depressive illness, 14 healthy controls	Current and previous CBT treatment unknown.	A predictive error signal in response to a gambling task was related to different brain activity in depressed patients versus controls. Additionally, for some brain regions, the magnitude of the error signal correlated with Hamilton depression rating of illness severity.	III
Kumar et al., 2008	Case-control	15 medicated patients with MDD and 18 controls that participated twice: in an unmedicated state (n=18) and in a medicated state (n=15)	Current and previous CBT treatment unknown.	Compared with healthy control subjects, medicated depressed patients showed blunted reward learning signals (reduced activations and deactivations) in the ventral striatum (VS), rostral and dorsal anterior cingulate (ACC), retrosplenial cortex (RC), midbrain and hippocampus, as well as increased responses in the ventral tegmental area during a reward-learning task. Abnormal signals in several of the brain areas correlated with depression severity.	III
Meyer et al., 2004	Case-control	20 depressed patients vs. 20 controls	Current and previous CBT treatment unknown.	Highly negative dysfunctional attitudes were related to higher serotonin transporter (5-HTT) density in regions with 5-HT nerve terminals. 5-HTT density was higher in the depressed subjects with highly abnormal DAS scores compared to the controls.	III

	Wang, Zhou, Dai, Ji, & Feng, 2017	Case-control	Twelve drug-free depressed patients and fifteen matched healthy controls	Current and previous CBT treatment unknown.	Behavior inhibition and activation (approach/avoidance motivation) was related to activity in different brain areas during reappraisal of emotional pictures with approach/avoidant strategies in depressed patients compared to healthy controls.	III
	Yang et al., 2015	Case-control	Patients with first-episode MDD (N=25) and healthy controls (N=25)	Current and previous CBT treatment unknown.	Patients with MDD showed significantly weaker responses in the left caudate nucleus when contrasting the 'high reward'-'low reward' condition, and blunted responses in the left superior temporal gyrus and the right caudate nucleus when contrasting high and low probabilities. In addition, they showed less deactivation at the middle frontal gyrus and a blunted response at the left medial frontal gyrus, the right thalamus and the cingulate gyrus during high reward probability conditions. A negative correlation between performance on a decision-making task and activation at the superior temporal gyrus was observed in MDD patients.	III
Learning processes and CBT outcome						
Cognitive processes	Ekeblad, Falkenstrom, & Holmqvist, 2015	Prospective cohort study without control group	MDD patients were randomized to either CBT (n=48) or interpersonal psychotherapy (IPT) (n=48)	14 sessions	Patients with higher (depression-specific) reflective functioning had better outcomes on self-rated depression. Type of treatment did not moderate results.	IV
	Beard et al., 2015	Prospective cohort study without control group	MDD (n = 21), bipolar I disorder (n = 5), bipolar II disorder (n=2) and mood disorder not otherwise specified (n = 4)	Five 50-min group sessions each day and 2–3 weekly individual sessions in an average of 8 days	Baseline post-error accuracy on a cognitive control task predicted (while controlling for baseline depression scores) attentional control and rumination but not depression after treatment.	IV
	Goodkind et al., 2013	Prospective cohort study without control group	55 patients with MDD aged 60 or older	12 sessions	Measures of executive functioning (Wisconsin Card Sort Task (WCST) were completed at baseline. Worse performance on the WCST was associated with better change in depression. The verbal fluency and the Stroop task performance were not associated with treatment outcome.	IV

	Thompson et al., 2015	Prospective cohort study without control group	60 patients with MDD (≥ 59 years)	12 weeks of CBT	Neurocognitive measures of WCST performance (i.e. measuring executive functioning) were not significant predictors of better CBT outcome. No associations between predictors and baseline depression severity.	IV
	Yang et al., 2018	Prospective cohort study with control group	28 patients with MDD, 53 patients with PTSD and 23 healthy control subjects: in this group 17 patient with MDD and 34 patients with PTSD volunteered in CBT	Patients received 12 weeks of CBT for MDD or cognitive processing therapy for PTSD	Improvement in reaction time on a cognitive and emotional control task during CBT was correlated to improvement in depressive symptoms. Healthy subjects did not show improvement in reaction time.	II
	Spinhoven et al., 2006	Prospective cohort study with control group	Participants with MDD allocated to CT (n=60) or treatment as usual (n=56)	8 sessions group CT	Autobiographical memory and neurocognitive variables at pretreatment did not predict relapse or recurrence.	II
	Hummel et al., 2017	Prospective cohort study without control group	Depressed elder (age > 65) randomized into CBT (n=56) versus waiting list control group with usual care (n=99)	15 weekly 90-minute group sessions (first and last session individual)	Cognitive functioning at baseline was related to post-treatment depression.	IV
Neurobiological processes	Fu et al., 2008	Prospective cohort study with control group	16 depressed patients vs. 16 matched healthy volunteers	16 sessions	Patients with the most clinical improvement seemed more comparable to healthy subjects at baseline. Patients who had at baseline the lowest activity in the area from the right inferior frontal gyres to the insula and the left putamen/globus pallidus, the highest load-response activity in the left inferior frontal gyrus and lowest load-response in the anterior cingulate, right middle frontal, right insula/inferior frontal gyrus and putamen had the greatest clinical improvement. These correlations were not confounded by initial depression severity, as no regions showed a significant relationship with baseline depression score.	III

Stange et al., 2017	Prospective cohort study without control group	32 patients with MDD and/or social anxiety disorders	12 weeks	Patients with larger pre-treatment enhanced attention toward aversive stimuli as measured by late positive potentials (LPP, a form of event related potentials) relative to neutral distracters were more likely to respond to CBT and demonstrated larger reductions in symptoms of depression and anxiety after controlling for pre-treatment depression.	IV
Sankar et al., 2015	Prospective cohort study with control group	16 depressed patients vs. 16 matched controls	16 weekly sessions	Increase in activity in the left precentral gyrus during processing of dysfunctional attitudes was related to greater change in depression. Healthy controls did not show an increase in activity in this area.	III
Stange, MacNamara, Kennedy, et al., 2017	Prospective cohort study without control group	39 patients with anxiety and/or depression	12 weeks	LPP (i.e. form of event related potentials related to attention to emotional information) and reaction time did not distinguish CBT responders from nonresponders, but individuals who demonstrated greater ability to benefit behaviorally (i.e., faster reaction times) from smaller LPPs (i.e. showing greater brain-behavioral adaptability) were more likely to respond to treatment and showed greater improvements in depressive symptoms after controlling for pre-treatment depression.	IV
Siegle, Carter, & Thase, 2006	Prospective cohort study with control group	14 depressed patients vs. 21 controls	16 sessions	Participants whose sustained reactivity to emotional stimuli was low in the subgenual cingulate cortex and high in the amygdala displayed the strongest improvement controlling for initial depression severity.	III
Ritchey et al., 2011	Prospective cohort study with control group	11 depressed patients vs. 14 controls	20 sessions	Patients with less impairment in areas involved in cognitive control processes in the context of emotional processing but more impairment in areas involved in negative emotional biases showed better treatment response. Amygdala, caudal or hippocampal activity was not related to treatment response.	III
Gollan et al., 2014	Prospective cohort study with control group	Depressed (n=37) and healthy participants (n = 35) receiving BA	16 weekly sessions	Pre-treatment alpha electroencephalogram (EEG) asymmetry, assumed to be involved in motivation approach- and withdrawal-related motivation, was significantly higher in depressed than healthy participants at pre-treatment and predicted negative affect at post-treatment, but not remission to treatment.	III

McGrath et al., 2013	Prospective cohort study with control group	Depressed patients randomized into CBT (n=41) vs. Escitalopram (n=39)	16 sessions	Baseline insula (an area involved in the translation of experience into feelings) activity differentiated between responders to CBT and escitalopram: hypometabolism was associated with remission in CBT, hypermetabolism was associated with remission in escitalopram.	II
Rubin-Falcone et al., 2017	Prospective cohort study with control group	23 depressed patients vs. 12 healthy controls	14 sessions	Greater reduction in reduction in brain areas related to emotion regulation from pre- to post-treatment was associated with better treatment outcome controlling for baseline depression. Baseline performance of the neural correlates of emotion regulation was not related to treatment outcome.	III
Burkhouse et al., 2016	Prospective cohort study with control group	Patients with anxiety without depression (n=30) and comorbid anxiety and depression (CAD; n=22).	12 sessions	Those with reduced neural reactivity to reward at baseline (REWP) were more likely to respond to treatment. A reduced REWP was also associated with a greater pre-to-post CBT reduction in depressive symptoms among individuals with CAD, but not among individuals with pure anxiety.	II
Costafreda, Khanna, Mourao-Miranda, & Fu, 2009	Prospective cohort study without control group	16 medication-free individuals with MDD	16 sessions	Baseline activity in different brain areas during a sad facial expression task (related to affective and interpersonal processing) was related to clinical response to CBT.	IV
Crowther et al., 2015	Prospective cohort study with control group	23 unmedicated outpatients with MDD and 20 matched non-depressed controls	12 sessions BA	Response to psychotherapy in the MDD group was predicted by pretreatment greater connectivity between the right insula and the (right) middle temporal gyrus and between the left intraparietal sulcus and the orbital frontal cortex.	III

Seminowicz et al., 2004	Prospective cohort study with control group	119 depressed patients receiving CBT (n=14) or antidepressants (unmedicated during scan) and 42 healthy controls	15 sessions	Lastly, limbic–cortical and cortical–cortical path differences differentiated responders to CBT from responders to pharmacotherapy.	II
Fujino et al., 2015	Prospective cohort study without control group	10 MDD patients	16 sessions	The degree of improvement in depressive symptoms was positively correlated with gray matter volume in an area involved in multiple cognitive functions, the caudal portion of the anterior cingulate cortex.	IV
Gourgouvelis, Yielder, Clarke, Behbahani, & Murphy, 2018	Prospective cohort study with control group	8 medicated MDD patients performed an 8-week exercise intervention in addition to cognitive behavioral group therapy (CBGT) versus 8 medicated patients who attended CBGT only	8 weeks	Greater increase in brain-derived neurotrophic factor (BDNF) was related to greater improvement in depression and sleep quality, but BDNF increased more in the CBGT + exercise group.	III
Webb et al., 2018	Prospective cohort study with control group	MDD patients were randomized into internet CBT (iCBT) (n=37) versus control (n=40)	6 sessions in 10 weeks	Larger pretreatment right rostral (but not left or subgenual) anterior cingulate cortex (ACC) volume was a significant predictor of greater depressive symptom improvement in iCBT when controlling for demographic and clinical variables. In addition, pretreatment right rostral ACC volume was larger among patients receiving iCBT whose depression remitted relative to patients who did not remit.	II
Thompson et al., 2015	Prospective cohort study without control group	60 MDD outpatients (age 59 years and older) following CBT	12 weeks	Decreased activation in the left inferior frontal triangle and right superior frontal gyrus as well as increased activity in the right middle frontal gyrus and left superior frontal gyrus during performance of the Wisconsin Card Sort Task pre-treatment predicted a positive response to CBT.	IV

Note. Levels of evidence: Level 1 (I) = meta-analyses or experimental studies with a sample size n>50, such as randomized-controlled clinical trials or experiments in which the independent variable is manipulated; Level 2 (II) = Experimental studies with a small sample size n<50 or a prospective cohort study with a control group and sample size >50; Level 3 (III) =, non-randomized controlled trial, prospective cohort study with control group but small sample size<50 or case-control studies; Level 4 (IV) = case-series, cohort study without control group or nonrandomized uncontrolled trials; Level 5 (V) = case (n=1) studies or expert opinions. Note that some studies are included twice because they provide evidence for more than one of the described relations and that their design and level of evidence may be different for the different relations; BA= behavioral activation; CT = Cognitive Therapy; CBT= Cognitive Behavioral Therapy; MDD= Major Depressive Disorder; NA= not applicable; PTSD= Post Traumatic Stress Disorder; RCT = randomized controlled trial.

References supplementary materials 2

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