Data supplement to Fischer et al. Cortisol as a predictor of psychological therapy response in depressive disorders: systematic review and meta-analysis. British Journal of Psychiatry. doi: 10.1192/bjp.bp.115.180653

Table DS1 Characteristics of included studies on cortisol as a predictor of psychological therapy response in patients with depressive disorders

Study	Sample	Setting and treatment	Cortisol measure before treatment	Symptom measure after treatment	Results	Quality (points)
Rush, 1982	N = 14 Inclusionary criteria: major depressive disorder (Research Diagnostic Criteria), Hamilton Rating Scale for Depression Score ≥14 Exclusionary criteria: psychosis, bipolar disorder, concomitant major medical disorders, intake of barbiturates, meprobamate, reserpine, phenytoin, methyldopa, or glucocorticoids	Outpatient Non-randomised trial Cognitive therapy	Blood, dexamethasone administration at 11.30 pm (1 mg or 2 mg), subsequent measure at 4 pm	Responders: Beck Depression Inventory score ≤9	Five out of five non-suppressors (> 4 µg/dl) were non-responders, whereas eight out of nine suppressors were responders	7
Robbins, 1989	N = 38, mean age 15.6 (range:13-17) Inclusionary criteria: major depressive disorder (DSM-III), significantly incapacitated by their symptoms, eligible for dexamethasone suppression test Exclusionary criteria: significant medical illness, intake of psychotropic medication within	Inpatient Non-randomised trial Psychological therapy for at least six weeks, consisting of psychodynamically oriented interpersonal individual psychological	Blood, dexamethasone administration at 11 pm (1 mg), subsequent measures at 8 am, 4 pm, 11 pm	Responders: Schedules for Affective Disorders and Schizophrenia items on depression and anhedonia of < 3	All seven non-suppressors (> 5 µg/dl) were non-responders, whereas 18 out of 31 suppressors were responders	11

	past two weeks before dexamethasone suppression test	therapy (three times per week), family therapy (once per week), group therapy (twice per week), and active cognitive-behavioural therapeutic milieu				
McKnight, 1992	N = 22 (22f) Inclusionary criteria: female, age ≥ 18 years, major depressive disorder (DSM-III), Depression Scale of Minnesota Multiphasic Personality Inventory score ≥29, Beck Depression Inventory score ≥ 20, Depression Adjective Checklist ≥18, Personal Beliefs Inventory score ≥3, willing to pay for blood tests, eligible for dexamethasone suppression test Exclusionary criteria: any other axis I disorder, suicidality, antidepressant or tranquilising medication within past two weeks, under care for the treatment of depression and missing statement from physician allowing discontinuation of treatment	Outpatient Randomised trial Weekly one-hour sessions of cognitive therapy for eight weeks (vs. treatment with tricyclic antidepressants)	Blood, dexamethasone administration at 11.30 pm (1 mg), subsequent measure at 4 pm	Beck Depression Inventory Depression Adjective Checklist Depression Scale of Minnesota Multiphasic Personality Inventory	The ten non-suppressors (≥5 µg/dl) had higher scores on all symptom measures when compared to the twelve suppressors (adjusted for pre-treatment symptom scores)	12
Thase, 1993	N = 22 Inclusion: predominant major depressive disorder (DSM-III-R),	Inpatient Non-randomised trial	Urine, three consecutive 24 h collections	Beck Depression Inventory Hamilton Rating Scale for Depression	Cortisol levels were positively associated with scores on both symptom measures (post-treatment scores were highly correlated with their change scores: r = .92 and .96, respectively)	11

	Hamilton Rating Scale for Depression score > 14 Exclusion: ill health, alcohol and drug intake within past two weeks	Daily sessions of cognitive-behavioural therapy for four weeks, mean of 12.9 sessions				
Thase, 1996	N = 29 (13f, 16m), mean age 32.7 (range: 18-54) Inclusionary criteria: age 18-70, major depressive disorder (DSM-III-R), index episode < 2 years duration, Hamilton Rating Scale for Depression score ≥15 Exclusionary criteria: history of alcoholism or drug abuse within past six months, history of manic, hypomanic, or psychotic episodes, mental retardation, history of comorbidity with any other axis I disorder, antisocial or borderline personality disorder, unstable medical condition that may cause depression or affect dexamethasone suppression test, unstable medication that may cause depression or affect dexamethasone suppression test, electroconvulsive therapy within past six months, past non-response to cognitive-behavioural therapy, continuation of pharmacotherapy	Inpatient Non-randomised trial Daily sessions of cognitive-behavioural therapy for four weeks, mean of 12.4 sessions	Urine, three consecutive 24 h collections Blood, dexamethasone administration at 11 pm (1 mg), subsequent measures at 8 am, 4 pm, 11 pm	Beck Depression Inventory Hamilton Rating Scale for Depression	Urinary free cortisol levels were negatively associated with change in both symptom measures Mean post-dexamethasone plasma cortisol levels were not associated with change in either symptom measure	10
Kundermann, 2009	N = 18 (7f, 11m), mean age 36.8 (SEM = 1.9)	Inpatient	Blood, +30, +45, +60 min after venepuncture, and	Responders: Hamilton Rating	Baseline cortisol levels (+60 min) did not differ between the nine non-responders and the nine responders (adjusted for age)	12

	Inclusionary criteria: major depressive disorder (DSM-IV) Exclusionary criteria: comorbidity with any axis I or axis II disorder, suicidal tendencies, change of diagnosis during treatment, endocrine disorders, pregnancy or shift work within past three months, trans-meridian travel within past month, medication within past six days	Randomised trial Daily sessions of cognitive-behavioural therapy (with/without sleep deprivation) for three weeks	+30, +45, +60, +90, +150 min after clomipramine administration	Scale for Depression reduction of ≥50%	Post-clomipramine cortisol output did not differ between the nine non-responders and the nine responders (adjusted for age)	
Gunlicks-Stoessel, 2013	N = 15 (13f, 2m), mean age 15.2 Inclusionary criteria: age 12-17, major depressive disorder, dysthymic disorder, depressive disorder NOS, or adjustment disorder with depressed mood (DSM-IV), Children's Depression Rating Scale revised score ≥36, Beck Depression Inventory II score ≥14, Children's Global Assessment Scale score ≤65, Conflict Behavior Questionnaire score ≥65 Exclusionary criteria: substance abuse, bipolar disorder, thought disorder, eating disorder, conduct disorder, mental retardation, current risk for suicide, medical illness likely to interfere with treatment, concurrent treatment for depression, concurrent treatment with psychotropic medication or unstable medication for attention	Outpatient Randomised trial Weekly sessions of interpersonal therapy (with/without more involvement of parents) for 16 weeks	Saliva, baseline measure before discussion of an interpersonal conflict, subsequent measures +10, +20, +30 min	Children's Depression Rating Scale – revised version	Baseline cortisol levels were not associated with change in the symptom measure (alcohol abuse, medication, BMI, abuse, and time since awakening did not influence the analyses) Cortisol trajectories during the conflict were not associated with change in the symptom measure (alcohol abuse, medication, BMI, abuse, and time since awakening did not influence the analyses)	11

	deficit hyperactivity disorder within the past three months					
Holland, 2013	N = 54 (33f, 21m), mean age 70.2 (SD = 7.5) Inclusionary criteria: older adults, major depressive disorder, dysthymia, or adjustment disorder with depressed mood, Center for Epidemiologic Studies Depression Scale score ≥16 Exclusionary criteria: dementia, active substance abuse, history of psychosis or mania, altering antidepressant use during study	Outpatient Non-randomised trial Twelve one-hour sessions of cognitive-behavioural therapy for twelve to 16 weeks	Saliva, two consecutive days at awakening, 5 pm, 9 pm	Beck Depression Inventory II Center for Epidemiologic Studies Depression Scale Hamilton Rating Scale for Depression	Diurnal cortisol output was not associated with change in any of the symptom measures Structural equation modelling yielded a negative association between cortisol output and flatter slopes with change in depression (adjusted for age, gender, ethnicity, years of education, marital status, antidepressant usage, oestrogen hormone replacement therapy, general mental and physical health)	13

Table DS2 Quality tool to assess risk bias in studies investigating the relationship between pre-treatment cortisol levels and psychological therapy response in patients with depressive disorders (modified from Tak et al., 2011)

1) Has the depressive disorder been reliably assessed and validated?	According to ICD-10, DSM-IV, or DSM-5 by a trained clinician (2) Not according to ICD-10, DSM-IV, or DSM-5 or assessor not clearly established (1) Self-report or not clearly stated (0)
2) Is the psychological treatment sufficiently described?	Both treatment duration and session frequency are reported (2) Only treatment duration or session frequency is reported (1) No information about treatment duration or session frequency are given (0)
3) Are the patients defined with in- and exclusion criteria?	Medication use, comorbidity with medical diseases, comorbidity with other mental disorders, 3 stated (2) Medication use, comorbidity with medical diseases, comorbidity with other mental disorders, 1-2 stated (1) None stated or not clearly stated (0)
4) Are disorder characteristics presented (duration and severity of major depressive episode)?	Duration and severity of disorder are stated (2) Only duration or only severity is stated (1) None stated (0)
5) Have the treating clinician and the person assessing treatment response been blind regarding pre-treatment cortisol levels?	Yes (2) Not clearly stated (0)
6) Are methods for measuring cortisol clearly stated?	Time of day, behaviour shortly prior to assessment, storage conditions, type of assay performed, repeated measurements, assessing compliance, 5-6 stated (2) Time of day, behaviour shortly prior to assessment, storage conditions, type of assay performed, repeated measurements, assessing compliance, 3-4 stated (1) Time of day, behaviour shortly prior to assessment, storage conditions, type of assay performed, repeated measurements, assessing compliance, 1-2 or none stated (0)
7) Are the relevant statistics clearly described and presented?	Both correlation coefficient and sample size available, frequency table available, or mean value and standard deviation available (2) Only sample size available or only mean value available (1)

	Relevant statistics not clearly stated (0)
8) Are potential confounders assessed?[a]	Age, gender, body mass index, smoking, pre-treatment severity of depression, medication, physical exercise, 5-7 stated (2) Age, gender, body mass index, smoking, pre-treatment severity of depression, medication, physical exercise, 3-4 stated (1) Age, gender, body mass index, smoking, pre-treatment severity of depression, medication, physical exercise, 1-2 or none stated (0)
9) Are the analyses adjusted for potential confounders?[b]	Age, gender, body mass index, smoking, pre-treatment severity of depression, medication, physical exercise, 5-7 stated (2) Age, gender, body mass index, smoking, pre-treatment severity of depression, medication, physical exercise, 3-4 stated (1) Age, gender, body mass index, smoking, pre-treatment severity of depression, medication, physical exercise, 1-2 or none stated (0)

[a]In case of exclusion at item 3, consider confounder as assessed

[b]In case of exclusion at item 3 or no significant impact on statistical analyses, consider confounder as adjusted for