

Study	Groups	Voxel location				Spectral quality	
		Location figure	Participants shown	Text description	Voxel size	Spectra figure	Participants shown
Aoki 2015	ASD (Oxytocin treatment)	Drawn	N/A	3	Dimensions	From data	Single
Atagun 2018	SCZ + BD-I + BD-II + HC	Drawn	N/A	2	Dimensions	From data	Single
Atagun 2017	BD-I + BD-II + HC	None	N/A	2	Dimensions	None	N/A
Atagun 2015	SCZ + BD-I + HC	Drawn	N/A	2	Dimensions	From data	Single
Bae 2016	ADHD + HC	Drawn	Single	3	Dimensions	From data	Single
Bauer 2016	ADHD + HC	Drawn	N/A	3	Dimensions	From data	Single
Bollmann 2015	ADHD + HC	Drawn	N/A	1	Dimensions	From data	Single
Bond 2016	BD + HC	Drawn	N/A	1	Dimensions	From data	Single
Bossong 2019	High-risk psychosis + HC	Drawn	N/A	1	Dimensions	From data	Single
Brennan 2017	MDD (Citalopram treatment)	Drawn	N/A	3	Dimensions	From data	Single
Bustillo 2016	SCZ	Drawn	N/A	3	Dimensions	From data	Single
Carvalho 2018	ASD + HC	From data	Single	3	Dimensions	From data	Single
Chiappelli 2015a	SCZ + HC	Drawn	N/A	2	Volume	From data	Single
Chiappelli 2015b	SCZ + HC	Drawn	N/A	3	Dimensions	From data	Single
Chitty 2015	BD + HC	From data	Single	1	Dimensions	From data	Single

Chiu 2018	SCZ + HC	Drawn	N/A	3	N/A	From data	Single
Chouinard 2017	SCZ + HC	Drawn	N/A	1	Dimensions	From data	Single
Coughlin 2015	SCZ + HC	From data	Single	1	Dimensions	From data	Single
de Rezende 2018	PPD + HC	From data	Single	2	Dimensions	None	N/A
Drenthen 2016	High-functioning autism + HC	From data	Single	1	Dimensions	From data	Single
Dubin 2016	Depression (pre + post rTMS)	Drawn	N/A	1	Dimensions	From data	Single
Duffy 2015	"At risk" Depression + HC	From data	Single	1	Dimensions	From data	Single
Endres 2017	ASD + HC	From data	Single	1	Dimensions	From data	Single
Ernst 2017	MDD + HC	From data	Single	1	Dimensions	From data	Single
Evans 2018	MDD (baseline + post Ketamine treatment) + HC	From data	All subjects	2	Dimensions	From data	Single
Fleck 2017	BD-I (baseline + post Lithium treatment)	None	N/A	1	Dimensions	None	N/A
Ford 2017a	Social Disorganisation (ASD + SCZ trait phenotypes)	From data	Single	2	Dimensions	From data	Single
Ford 2017b	Social Disorganisation (ASD + SCZ trait phenotypes)	From data	Single	1	Dimensions	None	Group
Ford 2019	Social Disorganisation (ASD + SCZ trait phenotypes)	From data	Single	2	Dimensions	None	Group
Freed 2017	MDD + HC	Drawn	N/A	1	Dimensions	From data	Single

Gabbay 2017	MDD + HC	Drawn	N/A	1	Dimensions	From data	Single
Galinska-Skok 2018	SCZ + BD-I + HC	Drawn	N/A	2	Dimensions	From data	Single
Gallinat 2016	SCZ + HC	Drawn	N/A	1	Dimensions	From data	Single
Girgis 2019	SCZ + HC	Drawn	N/A	3	Dimensions	From data	Single
Godlewska 2018	BD (pre + post Lamotrigine)	From data	Single	2	Dimensions	None	N/A
Grent-'t-Jong 2018	FEP + SCZ+ HC	From data	Single	2	Dimensions	From data	Single
Haarman 2016	BD-I + HC	From data	Single	1	Dimensions	From data	Single
He 2018	High risk SCZ + HC	From data	Single	1	Dimensions	From data	Single
Henigsberg 2018	Recurrent depression (mono antidepressant treatment)	None	N/A	1	Dimensions	None	N/A
Horder 2018	ASD	Drawn	N/A	1	Dimensions	From data	Single
Huang 2017	First-episode SCZ	Drawn	N/A	1	Dimensions	From data	Single
Huber 2018	BD + HC	Drawn	N/A	1	Dimensions	From data	Single
Hugdahl 2015	SCZ + HC	Drawn	N/A	2	Dimensions	From data	Single
Inci Kenar 2017	ADHD (pre + post Methylphenidate)	None	N/A	1	N/A	None	N/A
Inci Kenar 2016	ADHD (pre + post Methylphenidate)	None	N/A	1	N/A	None	N/A
Ito 2017	ASD + HC	Drawn	N/A	1	Dimensions	From data	Single

Javitt 2018	HC (pre + post Ketamine)	Drawn	N/A	3	Dimensions	From data	Single
Jayaweera 2015	Life-time depression + HC	From data	Single	1	Dimensions	From data	Single
Jollant 2016	MDD + HC	From data	Group	1	Dimensions	From data	Single
Kim 2017	SCZ + BD + HC	Drawn	N/A	1	Dimensions	From data	Group
Kirtaş 2016	Chronic SCZ + FEP + HC	From data	Single	1	Dimensions	From data	Single
Klauser 2018	SCZ (placebo + N-acetylcysteine treatment)	None	N/A	1	Dimensions	None	N/A
Knudsen 2019	MDD (pre + post ECT)	From data	Single	3	Dimensions	From data	Single
Kubo 2017	BD + HC	From data	Single	3	Volume	From data	Single
Lee 2018	SCZ	None	N/A	1	Volume	None	N/A
Lewis 2016	Depression	Drawn	N/A	3	Dimensions	None	N/A
Libero 2015	ASD + HC	From data	Single	3	Dimensions	From data	Single
Lirng 2015	Migraine with MDD + migraine without MDD	Drawn	N/A	1	Dimensions	From data	Single
Liu 2015	SCZ + HC	Drawn	N/A	1	Dimensions	From data	Single
McQueen 2018	SCZ (placebo + N-acetylcysteine treatment)	Drawn	N/A	1	Dimensions	From data	Single
Milak 2016	MDD (pre + post Ketamine treatment)	Drawn	N/A	1	Dimensions	From data	Single
Mori 2015	ASD + HC	Drawn	N/A	1	Dimensions	From data	Single

Murrough 2018	BD (pre + post Minocycline treatment)	Drawn	N/A	2	Dimensions	From data	Single
Naaijen 2017	ADHD + HC	From data	Single	3	Volume	From data	Single
Naaijen 2018	ADHD + HC	From data	All subjects	3	Dimensions	From data	Single
Njau 2016	Depression + HC	Drawn	N/A	1	Dimensions	From data	Single
Ota 2015	SCZ + HC	None	N/A	1	Dimensions	None	N/A
Plitman 2018	SCZ + HC	From data	Single	3	Volume	None	N/A
Port 2017	ASD + HC	None	N/A	1	Dimensions	None	N/A
Posporelis 2018	SCZ + HC	From data	Single	3	Dimensions	From data	Single
Prisciandaro 2017	BD + alcohol dependence	From data	Single	3	Dimensions	From data	Single
Psomiades 2018	SCZ (AVH + non-AVH)	From data	N/A	1	Dimensions	From data	Single
Puts 2017	ASD + HC	Drawn	N/A	3	Dimensions	None	All subjects
Reid 2016	SCZ + HC	None	N/A	1	Dimensions	None	N/A
Rigucci 2018	Early psychosis (cannabis users) + HC	Drawn	N/A	1	Dimensions	From data	Single
Robertson 2016	ASD + HC	From data	Single	2	Dimensions	From data	All subjects
Rosa 2017	PPD + HC	From data	Single	3	Dimensions	From data	Single
Rowland 2016a	SCZ + HC	From data	Single	3	Dimensions	From data	Single
Rowland 2016b	SCZ + HC	From data	Single	3	Dimensions	From data	Single

Shirayama 2017	MDD + HC	From data	Single	1	Dimensions	None	N/A
Silveira 2016	BD + HC	Drawn	N/A	3	Dimensions	From data	Single
Singh 2018	SCZ + HC	From data	Single	1	Dimensions	From data	Single
Soeiro-de-Souza 2018	BD-I + HC	Drawn	N/A	3	Dimensions	From data	Single
Soeiro-de-Souza 2016	BD-I + HC	From data	Single	1	Dimensions	None	N/A
Solleveld 2017	ADHD (pre + post Methylphenidate)	From data	Single	3	Dimensions	From data	Single
Stivaros 2018	ASD with NF1 (Simvastatin + Placebo)	From data	Single	1	Dimensions	None	N/A
Strzelecki 2015	SCZ (antipsychotic + antidepressant treatment)	From data	Single	1	Dimensions	From data	Single
Thakkar 2017	SCZ + HC	Drawn	N/A	2	Dimensions	From data	Single
Ublinskii 2015	SCZ	Drawn	N/A	2	Dimensions	From data	Single
Unal 2016	ADHD (pre + post Methylphenidate)	None	N/A	1	N/A	None	N/A
Unal 2015	ADHD (pre + post Methylphenidate)	None	N/A	1	N/A	None	N/A
Urrila 2017	Depression + HC	From data	Single	1	Dimensions	From data	Single
Wang 2019	FEP + HC	Drawn	N/A	1	Dimensions	From data	Single
Wijtenburg 2017	SCZ + HC	From data	Single	1	Dimensions	From data	Single

Wise 2018	MDD + BD + HC	Drawn	N/A	3	Dimensions	None	N/A
Xia 2018	SCA (ECT + antipsychotic treatment)	From data	Single	1	Dimensions	From data	Single
Yang 2016	MDD + HC	Drawn	N/A	1	Volume	From data	Single
Yuksel 2015	BD-I + HC	Drawn	N/A	1	Dimensions	From data	Single
Zhang 2016	MDD + HC	Drawn	N/A	3	Dimensions	From data	Single
Zong 2015	FEP (pre +post Risperidone treatment) + HC	From data	Single	1	Dimensions	From data	Single

Supporting table 1: Studies included in the literature appraisal. Study references are given, along with the participant groups included in each. The type of voxel location information provided is then detailed. “From data” means that an actual MRS voxel from at least one participant is shown. “Drawn” means that a representation of the region has been made by the researcher rather than produced from data. Textual descriptions are rated into categories 1, 2, and 3, as detailed in the main text. The type of spectral images included are then listed. For both voxel location and spectra, where data is shown it is denoted whether this comes from a single participant, all participants irrespective of group membership, or with the participant groups separated.

AVH = Auditory verbal hallucinations

BD-I = Bipolar disorder I

BD-II = Bipolar disorder II

ECT = Electroconvulsive therapy

FEP = First-episode psychosis

NF1 = Neurofibromatosis 1

PPD = Postpartum Depression

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