Crossley et al. Neuroimaging distinction between neurological and psychiatric disorders. *Br J Psychiatry*
doi: 10.1192/bjp.bp.114.154393

Online supplement DS1

Details of included studies (references)

ADHD (1-7)
Alzheimer's disease (8-14)
Anorexia Nervosa (15-21)
Asperger (22-28)
Bipolar Affective Disorder (29-35)
Dementia in Parkinson's Disease / Lewy Body (36-42)
Dyslexia (43-49)
Dystonia (50-56)
Frontotemporal Dementia (57-63)
Ataxia (64-70)
Huntington's (71-77)
Juvenile Myoclonic Epilepsy (78-84)
Amyotrophic lateral sclerosis (85-91)
Multiple sclerosis (92-98)
OCD (99-105)
Panic disorder (106-112)
Parkinson (41, 113-118)
Progressive Supranuclear Palsy (118-124)
PTSD (125-131)
Major depressive disorder (132-138)
Schizophrenia (139-145)
Temporal Lobe Epilepsy
- Left (146-152)
- Right (146, 149, 151-154)

Additional references

1. Almeida Montes LG, Ricardo-Garcell J, Barajas De La Torre LB, Prado Alcantara H, Martinez Garcia RB, Fernandez-Bouzas A, et al. Clinical correlations of grey matter reductions in the caudate nucleus of adults with attention deficit hyperactivity disorder. Journal of psychiatry & neuroscience : JPN. 2010; 35(4): 238-46.
2. Amico F, Stauber J, Koutsouleris N, Frodl T. Anterior cingulate cortex gray matter abnormalities in adults with attention deficit hyperactivity disorder: a voxel-based morphometry study. Psychiatry Research. 2011; 191(1): 31-5.
3. Carmona S, Vilarroya O, Bielsa A, Tremols V, Soliva JC, Rovira M, et al. Global and regional gray matter reductions in ADHD: a voxel-based morphometric study. Neuroscience letters. 2005; 389(2): 88-93.
4. Depue BE, Burgess GC, Bidwell LC, Willcutt EG, Banich MT. Behavioral performance predicts grey matter reductions in the right inferior frontal gyrus in young adults with combined type ADHD. Psychiatry Research. 2010; 182(3): 231-7.

5. Sasayama D, Hayashida A, Yamasue H, Harada Y, Kaneko T, Kasai K, et al. Neuroanatomical correlates of attention-deficit-hyperactivity disorder accounting for comorbid oppositional defiant disorder and conduct disorder. Psychiatry Clin Neurosci. 2010; 64(4): 394-402.
6. Seidman LJ, Biederman J, Liang L, Valera EM, Monuteaux MC, Brown A, et al. Gray matter alterations in adults with attention-deficit/hyperactivity disorder identified by voxel based morphometry. Biological Psychiatry. 2011; 69(9): 857-66.
7. Yang P, Wang PN, Chuang KH, Jong YJ, Chao TC, Wu MT. Absence of gender effect on children with attention-deficit/hyperactivity disorder as assessed by optimized voxel-based morphometry. Psychiatry Research. 2008; 164(3): 245-53.
8. Agosta F, Pievani M, Sala S, Geroldi C, Galluzzi S, Frisoni GB, et al. White matter damage in Alzheimer disease and its relationship to gray matter atrophy. Radiology. 2011; 258(3): 853-63.
9. Baron JC, Chetelat G, Desgranges B, Perchey G, Landeau B, de la Sayette V, et al. In vivo mapping of gray matter loss with voxel-based morphometry in mild Alzheimer's disease. NeuroImage. 2001; 14(2): 298-309.
10. Waragai M, Okamura N, Furukawa K, Tashiro M, Furumoto S, Funaki Y, et al. Comparison study of amyloid PET and voxel-based morphometry analysis in mild cognitive impairment and Alzheimer's disease. J Neurol Sci. 2009; 285(1-2): 100-8.
11. Matsuda H, Kitayama N, Ohnishi T, Asada T, Nakano S, Sakamoto S, et al. Longitudinal evaluation of both morphologic and functional changes in the same individuals with Alzheimer's disease. J Nucl Med. 2002; 43(3): 304-11.
12. Farrow TF, Thiyagesh SN, Wilkinson ID, Parks RW, Ingram L, Woodruff PW. Fronto-temporal-lobe atrophy in early-stage Alzheimer's disease identified using an improved detection methodology. Psychiatry Research. 2007; 155(1): 11-9.
13. Rami L, Gomez-Anson B, Monte GC, Bosch B, Sanchez-Valle R, Molinuevo JL. Voxel based morphometry features and follow-up of amnestic patients at high risk for Alzheimer's disease conversion. Int J Geriatr Psychiatry. 2009; 24(8): 875-84.
14. Zahn R, Buechert M, Overmans J, Talazko J, Specht K, Ko CW, et al. Mapping of temporal and parietal cortex in progressive nonfluent aphasia and Alzheimer's disease using chemical shift imaging, voxel-based morphometry and positron emission tomography. Psychiatry Research. 2005; 140(2): 115-31.
15. Boghi A, Sterpone S, Sales S, D'Agata F, Bradac GB, Zullo G, et al. In vivo evidence of global and focal brain alterations in anorexia nervosa. Psychiatry Research. 2011; 192(3): 154-9.
16. Friederich HC, Walther S, Bendszus M, Biller A, Thomann P, Zeigermann S, et al. Grey matter abnormalities within cortico-limbic-striatal circuits in acute and weight-restored anorexia nervosa patients. NeuroImage. 2012; 59(2): 1106-13.
17. Gaudio S, Nocchi F, Franchin T, Genovese E, Cannata V, Longo D, et al. Gray matter decrease distribution in the early stages of Anorexia Nervosa restrictive type in adolescents. Psychiatry Research. 2011; 191(1): 24-30.

18. Joos A, Kloppel S, Hartmann A, Glauche V, Tuscher O, Perlov E, et al. Voxel-based morphometry in eating disorders: correlation of psychopathology with grey matter volume. Psychiatry Research. 2010; 182(2): 146-51.
19. Suchan B, Busch M, Schulte D, Gronemeyer D, Herpertz S, Vocks S. Reduction of gray matter density in the extrastriate body area in women with anorexia nervosa. Behavioural brain research. 2010; 206(1): 63-7.
20. Brooks SJ, Barker GJ, O'Daly OG, Brammer M, Williams SC, Benedict C, et al. Restraint of appetite and reduced regional brain volumes in anorexia nervosa: a voxel-based morphometric study. BMC Psychiatry. 2011; 11: 179.
21. Mainz V, Schulte-Ruther M, Fink GR, Herpertz-Dahlmann B, Konrad K. Structural brain abnormalities in adolescent anorexia nervosa before and after weight recovery and associated hormonal changes. Psychosom Med. 2012; 74(6): 574-82.
22. Ecker C, Rocha-Rego V, Johnston P, Mourao-Miranda J, Marquand A, Daly EM, et al. Investigating the predictive value of whole-brain structural MR scans in autism: a pattern classification approach. NeuroImage. 2010; 49(1): 44-56.
23. Brieber S, Neufang S, Bruning N, Kamp-Becker I, Remschmidt H, Herpertz-Dahlmann B, et al. Structural brain abnormalities in adolescents with autism spectrum disorder and patients with attention deficit/hyperactivity disorder. J Child Psychol Psychiatry. 2007; 48(12): 1251-8.
24. Abell F, Krams M, Ashburner J, Passingham R, Friston K, Frackowiak R, et al. The neuroanatomy of autism: a voxel-based whole brain analysis of structural scans. Neuroreport. 1999; 10(8): 1647-51.
25. Kwon H, Ow AW, Pedatella KE, Lotspeich LJ, Reiss AL. Voxel-based morphometry elucidates structural neuroanatomy of high-functioning autism and Asperger syndrome. Dev Med Child Neurol. 2004; 46(11): 760-4.
26. McAlonan GM, Daly E, Kumari V, Critchley HD, van Amelsvoort T, Suckling J, et al. Brain anatomy and sensorimotor gating in Asperger's syndrome. Brain : a journal of neurology. 2002; 125(Pt 7): 1594-606.
27. McAlonan GM, Suckling J, Wong N, Cheung V, Lienenkaemper N, Cheung C, et al. Distinct patterns of grey matter abnormality in high-functioning autism and Asperger's syndrome. J Child Psychol Psychiatry. 2008; 49(12): 1287-95.
28. Toal F, Daly EM, Page L, Deeley Q, Hallahan B, Bloemen O, et al. Clinical and anatomical heterogeneity in autistic spectrum disorder: a structural MRI study. Psychological Medicine. 2010; 40(7): 1171-81.
29. Haldane M, Cunningham G, Androutsos C, Frangou S. Structural brain correlates of response inhibition in Bipolar Disorder I. Journal of Psychopharmacology. 2008; 22(2): 138-43.
30. Chen X, Wen W, Malhi GS, Ivanovski B, Sachdev PS. Regional gray matter changes in bipolar disorder: a voxel-based morphometric study. The Australian and New Zealand journal of psychiatry. 2007; 41(4): 327-36.
31. Ha TH, Ha K, Kim JH, Choi JE. Regional brain gray matter abnormalities in patients with bipolar II disorder: a comparison study with bipolar I patients and healthy controls. Neuroscience letters. 2009; 456(1): 44-8.
32. Scherk H, Kemmer C, Usher J, Reith W, Falkai P, Gruber O. No change to grey and white matter volumes in bipolar I disorder patients. European Archives of Psychiatry and Clinical Neuroscience. 2008; 258(6): 345-9.

33. Stanfield AC, Moorhead TW, Job DE, McKirdy J, Sussmann JE, Hall J, et al. Structural abnormalities of ventrolateral and orbitofrontal cortex in patients with familial bipolar disorder. Bipolar disorders. 2009; 11(2): 135-44.
34. Almeida JR, Akkal D, Hassel S, Travis MJ, Banihashemi L, Kerr N, et al. Reduced gray matter volume in ventral prefrontal cortex but not amygdala in bipolar disorder: significant effects of gender and trait anxiety. Psychiatry Research. 2009; 171(1): 54-68.
35. McDonald C, Bullmore E, Sham P, Chitnis X, Suckling J, MacCabe J, et al. Regional volume deviations of brain structure in schizophrenia and psychotic bipolar disorder: computational morphometry study. The British journal of psychiatry : the journal of mental science. 2005; 186: 369-77.
36. Takahashi R, Ishii K, Miyamoto N, Yoshikawa T, Shimada K, Ohkawa S, et al. Measurement of gray and white matter atrophy in dementia with Lewy bodies using diffeomorphic anatomic registration through exponentiated lie algebra: A comparison with conventional voxel-based morphometry. AJNR Am J Neuroradiol. 2010; 31(10): 1873-8.
37. Ash S, McMillan C, Gross RG, Cook P, Morgan B, Boller A, et al. The organization of narrative discourse in Lewy body spectrum disorder. Brain and language. 2011; 119(1): 30-41.
38. Sanchez-Castaneda C, Rene R, Ramirez-Ruiz B, Campdelacreu J, Gascon J, Falcon C, et al. Correlations between gray matter reductions and cognitive deficits in dementia with Lewy Bodies and Parkinson's disease with dementia. Mov Disord. 2009; 24(12): 1740-6.
39. Beyer MK, Janvin CC, Larsen JP, Aarsland D. A magnetic resonance imaging study of patients with Parkinson's disease with mild cognitive impairment and dementia using voxel-based morphometry. J Neurol Neurosurg Psychiatry. 2007; 78(3): 254-9.
40. Nagano-Saito A, Washimi Y, Arahata Y, Kachi T, Lerch JP, Evans AC, et al. Cerebral atrophy and its relation to cognitive impairment in Parkinson disease. Neurology. 2005; 64(2): 224-9.
41. Summerfield C, Junque C, Tolosa E, Salgado-Pineda P, Gomez-Anson B, Marti MJ, et al. Structural brain changes in Parkinson disease with dementia: a voxel-based morphometry study. Arch Neurol. 2005; 62(2): 281-5.
42. Burton EJ, McKeith IG, Burn DJ, Williams ED, O'Brien JT. Cerebral atrophy in Parkinson's disease with and without dementia: a comparison with Alzheimer's disease, dementia with Lewy bodies and controls. Brain : a journal of neurology. 2004; 127(Pt 4): 791-800.
43. Brambati SM, Termine C, Ruffino M, Stella G, Fazio F, Cappa SF, et al. Regional reductions of gray matter volume in familial dyslexia. Neurology. 2004; 63(4): 742-5.
44. Eckert MA, Leonard CM, Wilke M, Eckert M, Richards T, Richards A, et al. Anatomical signatures of dyslexia in children: unique information from manual and voxel based morphometry brain measures. Cortex; a journal devoted to the study of the nervous system and behavior. 2005; 41(3): 304-15.
45. Hoeft F, Meyler A, Hernandez A, Juel C, Taylor-Hill H, Martindale JL, et al. Functional and morphometric brain dissociation between dyslexia and reading ability. P Natl Acad Sci USA. 2007; 104(10): 4234-9.

46. Kronbichler M, Wimmer H, Staffen W, Hutzler F, Mair A, Ladurner G. Developmental dyslexia: gray matter abnormalities in the occipitotemporal cortex. Human Brain Mapping. 2008; 29(5): 613-25.
47. Menghini D, Hagberg GE, Petrosini L, Bozzali M, Macaluso E, Caltagirone C, et al. Structural correlates of implicit learning deficits in subjects with developmental dyslexia. Ann N Y Acad Sci. 2008; 1145: 212-21.
48. Silani G, Frith U, Demonet JF, Fazio F, Perani D, Price C, et al. Brain abnormalities underlying altered activation in dyslexia: a voxel based morphometry study. Brain : a journal of neurology. 2005; 128(Pt 10): 2453-61.
49. Steinbrink C, Vogt K, Kastrup A, Muller HP, Juengling FD, Kassubek J, et al. The contribution of white and gray matter differences to developmental dyslexia: insights from DTI and VBM at 3.0 T. Neuropsychologia. 2008; 46(13): 3170-8.
50. Pantano P, Totaro P, Fabbrini G, Raz E, Contessa GM, Tona F, et al. A transverse and longitudinal MR imaging voxel-based morphometry study in patients with primary cervical dystonia. AJNR Am J Neuroradiol. 2011; 32(1): 81-4.
51. Egger K, Mueller J, Schocke M, Brenneis C, Rinnerthaler M, Seppi K, et al. Voxel based morphometry reveals specific gray matter changes in primary dystonia. Mov Disord. 2007; 22(11): 1538-42.
52. Etgen T, Muhlau M, Gaser C, Sander D. Bilateral grey-matter increase in the putamen in primary blepharospasm. J Neurol Neurosurg Psychiatry. 2006; 77(9): 1017-20.
53. Obermann M, Yaldizli O, De Greiff A, Lachenmayer ML, Buhl AR, Tumczak F, et al. Morphometric changes of sensorimotor structures in focal dystonia. Mov Disord. 2007; 22(8): 1117-23.
54. Delmaire C, Vidailhet M, Elbaz A, Bourdain F, Bleton JP, Sangla S, et al. Structural abnormalities in the cerebellum and sensorimotor circuit in writer's cramp. Neurology. 2007; 69(4): 376-80.
55. Draganski B, Thun-Hohenstein C, Bogdahn U, Winkler J, May A. "Motor circuit" gray matter changes in idiopathic cervical dystonia. Neurology. 2003; 61(9): 1228-31.
56. Garraux G, Bauer A, Hanakawa T, Wu T, Kansaku K, Hallett M. Changes in brain anatomy in focal hand dystonia. Annals of neurology. 2004; 55(5): 736-9.
57. Grossman M, McMillan C, Moore P, Ding L, Glosser G, Work M, et al. What's in a name: voxel-based morphometric analyses of MRI and naming difficulty in Alzheimer's disease, frontotemporal dementia and corticobasal degeneration. Brain : a journal of neurology. 2004; 127(Pt 3): 628-49.
58. Libon DJ, McMillan C, Gunawardena D, Powers C, Massimo L, Khan A, et al. Neurocognitive contributions to verbal fluency deficits in frontotemporal lobar degeneration. Neurology. 2009; 73(7): 535-42.
59. Wilson SM, Henry ML, Besbris M, Ogar JM, Dronkers NF, Jarrold W, et al. Connected speech production in three variants of primary progressive aphasia. Brain : a journal of neurology. 2010; 133(Pt 7): 2069-88.
60. Kanda T, Ishii K, Uemura T, Miyamoto N, Yoshikawa T, Kono AK, et al. Comparison of grey matter and metabolic reductions in frontotemporal dementia using FDG-PET and voxel-based morphometric MR studies. Eur J Nucl Med Mol Imaging. 2008; 35(12): 2227-34.

61. Whitwell JL, Warren JD, Josephs KA, Godbolt AK, Revesz T, Fox NC, et al. Voxel-based morphometry in tau-positive and tau-negative frontotemporal lobar degenerations. Neurodegener Dis. 2004; 1(4-5): 225-30.
62. Gorno-Tempini ML, Dronkers NF, Rankin KP, Ogar JM, Phengrasamy L, Rosen HJ, et al. Cognition and anatomy in three variants of primary progressive aphasia. Annals of neurology. 2004; 55(3): 335-46.
63. Rosen HJ, Kramer JH, Gorno-Tempini ML, Schuff N, Weiner M, Miller BL. Patterns of cerebral atrophy in primary progressive aphasia. Am J Geriatr Psychiatry. 2002; 10(1): 89-97.
64. Alcauter S, Barrios FA, Diaz R, Fernandez-Ruiz J. Gray and white matter alterations in spinocerebellar ataxia type 7: an in vivo DTI and VBM study. NeuroImage. 2011; 55(1): 1-7.
65. Brenneis C, Bosch SM, Schocke M, Wenning GK, Poewe W. Atrophy pattern in SCA2 determined by voxel-based morphometry. Neuroreport. 2003; 14(14): 1799-802.
66. Goel G, Pal PK, Ravishankar S, Venkatasubramanian G, Jayakumar PN, Krishna N, et al. Gray matter volume deficits in spinocerebellar ataxia: an optimized voxel based morphometric study. Parkinsonism Relat Disord. 2011; 17(7): 521-7.
67. Lukas C, Schols L, Bellenberg B, Rub U, Przuntek H, Schmid G, et al. Dissociation of grey and white matter reduction in spinocerebellar ataxia type 3 and 6: a voxel-based morphometry study. Neuroscience letters. 2006; 408(3): 230-5.
68. Della Nave R, Ginestroni A, Tessa C, Cosottini M, Giannelli M, Salvatore E, et al. Brain structural damage in spinocerebellar ataxia type 2. A voxel-based morphometry study. Mov Disord. 2008; 23(6): 899-903.
69. Della Nave R, Ginestroni A, Giannelli M, Tessa C, Salvatore E, Salvi F, et al. Brain structural damage in Friedreich's ataxia. J Neurol Neurosurg Psychiatry. 2008; 79(1): 82-5.
70. Reetz K, Lencer R, Hagenah JM, Gaser C, Tadic V, Walter U, et al. Structural changes associated with progression of motor deficits in spinocerebellar ataxia 17. Cerebellum. 2010; 9(2): 210-7.
71. Henley SM, Wild EJ, Hobbs NZ, Scahill RI, Ridgway GR, Macmanus DG, et al. Relationship between CAG repeat length and brain volume in premanifest and early Huntington's disease. J Neurol. 2009; 256(2): 203-12.
72. Ille R, Schafer A, Scharmuller W, Enzinger C, Schoggl H, Kapfhammer HP, et al. Emotion recognition and experience in Huntington disease: a voxel-based morphometry study. Journal of psychiatry & neuroscience : JPN. 2011; 36(6): 383-90.
73. Peinemann A, Schuller S, Pohl C, Jahn T, Weindl A, Kassubek J. Executive dysfunction in early stages of Huntington's disease is associated with striatal and insular atrophy: a neuropsychological and voxel-based morphometric study. J Neurol Sci. 2005; 239(1): 11-9.
74. Kassubek J, Juengling FD, Kioschies T, Henkel K, Karitzky J, Kramer B, et al. Topography of cerebral atrophy in early Huntington's disease: a voxel based morphometric MRI study. J Neurol Neurosurg Psychiatry. 2004; 75(2): 213-20.
75. Wolf RC, Sambataro F, Vasic N, Wolf ND, Thomann PA, Landwehrmeyer GB, et al. Longitudinal functional magnetic resonance imaging of cognition in preclinical Huntington's disease. Exp Neurol. 2011; 231(2): 214-22.

76. Gomez-Anson B, Alegret M, Munoz E, Monte GC, Alayrach E, Sanchez A, et al. Prefrontal cortex volume reduction on MRI in preclinical Huntington's disease relates to visuomotor performance and CAG number. Parkinsonism Relat Disord. 2009; 15(3): 213-9.
77. Muhlau M, Weindl A, Wohlschlager AM, Gaser C, Stadtler M, Valet M, et al. Voxel-based morphometry indicates relative preservation of the limbic prefrontal cortex in early Huntington disease. J Neural Transm. 2007; 114(3): 367-72.
78. de Araujo Filho GM, Jackowski AP, Lin K, Guaranha MS, Guilhoto LM, da Silva HH, et al. Personality traits related to juvenile myoclonic epilepsy: MRI reveals prefrontal abnormalities through a voxel-based morphometry study. Epilepsy Behav. 2009; 15(2): 202-7.
79. O'Muircheartaigh J, Vollmar C, Barker GJ, Kumari V, Symms MR, Thompson P, et al. Focal structural changes and cognitive dysfunction in juvenile myoclonic epilepsy. Neurology. 2011; 76(1): 34-40.
80. Kim JH, Lee JK, Koh SB, Lee SA, Lee JM, Kim SI, et al. Regional grey matter abnormalities in juvenile myoclonic epilepsy: a voxel-based morphometry study. NeuroImage. 2007; 37(4): 1132-7.
81. Tae WS, Hong SB, Joo EY, Han SJ, Cho JW, Seo DW, et al. Structural brain abnormalities in juvenile myoclonic epilepsy patients: volumetry and voxel-based morphometry. Korean J Radiol. 2006; 7(3): 162-72.
82. Roebling R, Scheerer N, Uttner I, Gruber O, Kraft E, Lerche H. Evaluation of cognition, structural, and functional MRI in juvenile myoclonic epilepsy. Epilepsia. 2009; 50(11): 2456-65.
83. Lin K, Jackowski AP, Carrete H, Jr., de Araujo Filho GM, Silva HH, Guaranha MS, et al. Voxel-based morphometry evaluation of patients with photosensitive juvenile myoclonic epilepsy. Epilepsy Res. 2009; 86(2-3): 138-45.
84. Mory SB, Betting LE, Fernandes PT, Lopes-Cendes I, Guerreiro MM, Guerreiro CA, et al. Structural abnormalities of the thalamus in juvenile myoclonic epilepsy. Epilepsy Behav. 2011; 21(4): 407-11.
85. Chang JL, Lomen-Hoerth C, Murphy J, Henry RG, Kramer JH, Miller BL, et al. A voxel-based morphometry study of patterns of brain atrophy in ALS and ALS/FTLD. Neurology. 2005; 65(1): 75-80.
86. Mezzapesa DM, Ceccarelli A, Dicuonzo F, Carella A, De Caro MF, Lopez M, et al. Whole-brain and regional brain atrophy in amyotrophic lateral sclerosis. AJNR Am J Neuroradiol. 2007; 28(2): 255-9.
87. Senda J, Kato S, Kaga T, Ito M, Atsuta N, Nakamura T, et al. Progressive and widespread brain damage in ALS: MRI voxel-based morphometry and diffusion tensor imaging study. Amyotroph Lateral Scler. 2011; 12(1): 59-69.
88. Thivard L, Pradat PF, Lehericy S, Lacomblez L, Dormont D, Chiras J, et al. Diffusion tensor imaging and voxel based morphometry study in amyotrophic lateral sclerosis: relationships with motor disability. J Neurol Neurosurg Psychiatry. 2007; 78(8): 889-92.
89. Ellis CM, Suckling J, Amaro E, Jr., Bullmore ET, Simmons A, Williams SC, et al. Volumetric analysis reveals corticospinal tract degeneration and extramotor involvement in ALS. Neurology. 2001; 57(9): 1571-8.
90. Grosskreutz J, Kaufmann J, Fradrich J, Dengler R, Heinze HJ, Peschel T. Widespread sensorimotor and frontal cortical atrophy in Amyotrophic Lateral Sclerosis. BMC Neurol. 2006; 6: 17.

91. Cosottini M, Pesaresi I, Piazza S, Diciotti S, Cecchi P, Fabbri S, et al. Structural and functional evaluation of cortical motor areas in Amyotrophic Lateral Sclerosis. Exp Neurol. 2012; 234(1): 169-80.
92. Audoin B, Zaaraoui W, Reuter F, Rico A, Malikova I, Confort-Gouny S, et al. Atrophy mainly affects the limbic system and the deep grey matter at the first stage of multiple sclerosis. J Neurol Neurosurg Psychiatry. 2010; 81(6): 690-5.
93. Mesaros S, Rovaris M, Pagani E, Pulizzi A, Caputo D, Ghezzi A, et al. A magnetic resonance imaging voxel-based morphometry study of regional gray matter atrophy in patients with benign multiple sclerosis. Arch Neurol. 2008; 65(9): 1223-30.
94. Prinster A, Quarantelli M, Orefice G, Lanzillo R, Brunetti A, Mollica C, et al. Grey matter loss in relapsing-remitting multiple sclerosis: a voxel-based morphometry study. NeuroImage. 2006; 29(3): 859-67.
95. Prinster A, Quarantelli M, Lanzillo R, Orefice G, Vacca G, Carotenuto B, et al. A voxel-based morphometry study of disease severity correlates in relapsing--remitting multiple sclerosis. Mult Scler. 2010; 16(1): 45-54.
96. Sepulcre J, Sastre-Garriga J, Cercignani M, Ingle GT, Miller DH, Thompson AJ. Regional gray matter atrophy in early primary progressive multiple sclerosis: a voxel-based morphometry study. Arch Neurol. 2006; 63(8): 1175-80.
97. Ceccarelli A, Rocca MA, Valsasina P, Rodegher M, Pagani E, Falini A, et al. A multiparametric evaluation of regional brain damage in patients with primary progressive multiple sclerosis. Human Brain Mapping. 2009; 30(9): 3009-19.
98. Spano B, Cercignani M, Basile B, Romano S, Mannu R, Centonze D, et al. Multiparametric MR investigation of the motor pyramidal system in patients with 'truly benign' multiple sclerosis. Mult Scler. 2010; 16(2): 178-88.
99. Gilbert AR, Mataix-Cols D, Almeida JR, Lawrence N, Nutche J, Diwadkar V, et al. Brain structure and symptom dimension relationships in obsessive-compulsive disorder: a voxel-based morphometry study. J Affect Disord. 2008; 109(1-2): 117-26.
100. Gilbert AR, Keshavan MS, Diwadkar V, Nutche J, Macmaster F, Easter PC, et al. Gray matter differences between pediatric obsessive-compulsive disorder patients and high-risk siblings: a preliminary voxel-based morphometry study. Neuroscience letters. 2008; 435(1): 45-50.
101. van den Heuvel OA, Remijnse PL, Mataix-Cols D, Vrenken H, Groenewegen HJ, Uylings HB, et al. The major symptom dimensions of obsessive-compulsive disorder are mediated by partially distinct neural systems. Brain : a journal of neurology. 2009; 132(Pt 4): 853-68.
102. Pujol J, Soriano-Mas C, Alonso P, Cardoner N, Menchon JM, Deus J, et al. Mapping structural brain alterations in obsessive-compulsive disorder. Archives of general psychiatry. 2004; 61(7): 720-30.
103. Riffkin J, Yucel M, Maruff P, Wood SJ, Soulsby B, Olver J, et al. A manual and automated MRI study of anterior cingulate and orbito-frontal cortices, and caudate nucleus in obsessive-compulsive disorder: comparison with healthy controls and patients with schizophrenia. Psychiatry Research. 2005; 138(2): 99-113.
104. Szeszko PR, Christian C, Macmaster F, Lencz T, Mirza Y, Taormina SP, et al. Gray matter structural alterations in psychotropic drug-naive pediatric obsessive-compulsive disorder: an optimized voxel-based morphometry study. The American journal of psychiatry. 2008; 165(10): 1299-307.

105. Valente AA, Jr., Miguel EC, Castro CC, Amaro E, Jr., Duran FL, Buchpiguel CA, et al. Regional gray matter abnormalities in obsessive-compulsive disorder: a voxel-based morphometry study. Biological Psychiatry. 2005; 58(6): 479-87.
106. Asami T, Yamasue H, Hayano F, Nakamura M, Uehara K, Otsuka T, et al. Sexually dimorphic gray matter volume reduction in patients with panic disorder. Psychiatry Research. 2009; 173(2): 128-34.
107. Massana G, Serra-Grabulosa JM, Salgado-Pineda P, Gasto C, Junque C, Massana J, et al. Parahippocampal gray matter density in panic disorder: a voxel-based morphometric study. The American journal of psychiatry. 2003; 160(3): 566-8.
108. Uchida RR, Del-Ben CM, Busatto GF, Duran FL, Guimaraes FS, Crippa JA, et al. Regional gray matter abnormalities in panic disorder: a voxel-based morphometry study. Psychiatry Research. 2008; 163(1): 21-9.
109. Yoo HK, Kim MJ, Kim SJ, Sung YH, Sim ME, Lee YS, et al. Putaminal gray matter volume decrease in panic disorder: an optimized voxel-based morphometry study. Eur J Neurosci. 2005; 22(8): 2089-94.
110. Sobanski T, Wagner G, Peikert G, Gruhn U, Schluttig K, Sauer H, et al. Temporal and right frontal lobe alterations in panic disorder: a quantitative volumetric and voxel-based morphometric MRI study. Psychological Medicine. 2010; 40(11): 1879-86.
111. Lai CH, Hsu YY, Wu YT. First episode drug-naive major depressive disorder with panic disorder: gray matter deficits in limbic and default network structures. Eur Neuropsychopharmacol. 2010; 20(10): 676-82.
112. Lai CH, Wu YT. Fronto-temporo-insula gray matter alterations of first-episode, drug-naive and very late-onset panic disorder patients. J Affect Disord. 2012; 140(3): 285-91.
113. Camicioli R, Gee M, Bouchard TP, Fisher NJ, Hanstock CC, Emery DJ, et al. Voxel-based morphometry reveals extra-nigral atrophy patterns associated with dopamine refractory cognitive and motor impairment in parkinsonism. Parkinsonism Relat Disord. 2009; 15(3): 187-95.
114. Dalaker TO, Zivadinov R, Larsen JP, Beyer MK, Cox JL, Alves G, et al. Gray matter correlations of cognition in incident Parkinson's disease. Mov Disord. 2010; 25(5): 629-33.
115. Kostic VS, Agosta F, Petrovic I, Galantucci S, Spica V, Jecmenica-Lukic M, et al. Regional patterns of brain tissue loss associated with depression in Parkinson disease. Neurology. 2010; 75(10): 857-63.
116. Melzer TR, Watts R, MacAskill MR, Pitcher TL, Livingston L, Keenan RJ, et al. Grey matter atrophy in cognitively impaired Parkinson's disease. J Neurol Neurosurg Psychiatry. 2012; 83(2): 188-94.
117. Ramirez-Ruiz B, Marti MJ, Tolosa E, Gimenez M, Bargallo N, Valldeoriola F, et al. Cerebral atrophy in Parkinson's disease patients with visual hallucinations. Eur J Neurol. 2007; 14(7): 750-6.
118. Cordato NJ, Duggins AJ, Halliday GM, Morris JG, Pantelis C. Clinical deficits correlate with regional cerebral atrophy in progressive supranuclear palsy. Brain : a journal of neurology. 2005; 128(Pt 6): 1259-66.
119. Agosta F, Kostic VS, Galantucci S, Mesaros S, Svetel M, Pagani E, et al. The in vivo distribution of brain tissue loss in Richardson's syndrome and PSP-parkinsonism: a VBM-DARTEL study. Eur J Neurosci. 2010; 32(4): 640-7.

120. Boxer AL, Geschwind MD, Belfor N, Gorno-Tempini ML, Schauer GF, Miller BL, et al. Patterns of brain atrophy that differentiate corticobasal degeneration syndrome from progressive supranuclear palsy. Arch Neurol. 2006; 63(1): 81-6.
121. Brenneis C, Seppi K, Schocke M, Benke T, Wenning GK, Poewe W. Voxel based morphometry reveals a distinct pattern of frontal atrophy in progressive supranuclear palsy. J Neurol Neurosurg Psychiatry. 2004; 75(2): 246-9.
122. Padovani A, Borroni B, Brambati SM, Agosti C, Broli M, Alonso R, et al. Diffusion tensor imaging and voxel based morphometry study in early progressive supranuclear palsy. J Neurol Neurosurg Psychiatry. 2006; 77(4): 457-63.
123. Lehericy S, Hartmann A, Lannuzel A, Galanaud D, Delmaire C, Bienaimee MJ, et al. Magnetic resonance imaging lesion pattern in Guadeloupean parkinsonism is distinct from progressive supranuclear palsy. Brain : a journal of neurology. 2010; 133(Pt 8): 2410-25.
124. Takahashi R, Ishii K, Kakigi T, Yokoyama K, Mori E, Murakami T. Brain alterations and mini-mental state examination in patients with progressive supranuclear palsy: voxel-based investigations using f-fluorodeoxyglucose positron emission tomography and magnetic resonance imaging. Dement Geriatr Cogn Dis Extra. 2011; 1(1): 381-92.
125. Chen S, Xia W, Li L, Liu J, He Z, Zhang Z, et al. Gray matter density reduction in the insula in fire survivors with posttraumatic stress disorder: a voxel-based morphometric study. Psychiatry Research. 2006; 146(1): 65-72.
126. Eckart C, Stoppel C, Kaufmann J, Tempelmann C, Hinrichs H, Elbert T, et al. Structural alterations in lateral prefrontal, parietal and posterior midline regions of men with chronic posttraumatic stress disorder. Journal of psychiatry & neuroscience : JPN. 2011; 36(3): 176-86.
127. Nardo D, Hogberg G, Looi JC, Larsson S, Hallstrom T, Pagani M. Gray matter density in limbic and paralimbic cortices is associated with trauma load and EMDR outcome in PTSD patients. Journal of Psychiatric Research. 2010; 44(7): 477-85.
128. Thomaes K, Dorrepaal E, Draijer N, de Ruiter MB, van Balkom AJ, Smit JH, et al. Reduced anterior cingulate and orbitofrontal volumes in child abuse-related complex PTSD. The Journal of clinical psychiatry. 2010; 71(12): 1636-44.
129. Yamasue H, Kasai K, Iwanami A, Ohtani T, Yamada H, Abe O, et al. Voxel-based analysis of MRI reveals anterior cingulate gray-matter volume reduction in posttraumatic stress disorder due to terrorism. P Natl Acad Sci USA. 2003; 100(15): 9039-43.
130. Zhang J, Tan Q, Yin H, Zhang X, Huan Y, Tang L, et al. Decreased gray matter volume in the left hippocampus and bilateral calcarine cortex in coal mine flood disaster survivors with recent onset PTSD. Psychiatry Research. 2011; 192(2): 84-90.
131. Tavanti M, Battaglini M, Borgogni F, Bossini L, Calossi S, Marino D, et al. Evidence of diffuse damage in frontal and occipital cortex in the brain of patients with post-traumatic stress disorder. Neurol Sci. 2012; 33(1): 59-68.
132. Abe O, Yamasue H, Kasai K, Yamada H, Aoki S, Inoue H, et al. Voxel-based analyses of gray/white matter volume and diffusion tensor data in major depression. Psychiatry Research. 2010; 181(1): 64-70.

133. Amico F, Meisenzahl E, Koutsouleris N, Reiser M, Moller HJ, Frodl T. Structural MRI correlates for vulnerability and resilience to major depressive disorder. Journal of psychiatry & neuroscience : JPN. 2011; 36(1): 15-22.
134. Leung KK, Lee TM, Wong MM, Li LS, Yip PS, Khong PL. Neural correlates of attention biases of people with major depressive disorder: a voxel-based morphometric study. Psychological Medicine. 2009; 39(7): 1097-106.
135. Peng J, Liu J, Nie B, Li Y, Shan B, Wang G, et al. Cerebral and cerebellar gray matter reduction in first-episode patients with major depressive disorder: a voxel-based morphometry study. Eur J Radiol. 2011; 80(2): 395-9.
136. Shah PJ, Ebmeier KP, Glabus MF, Goodwin GM. Cortical grey matter reductions associated with treatment-resistant chronic unipolar depression. Controlled magnetic resonance imaging study. The British journal of psychiatry : the journal of mental science. 1998; 172: 527-32.
137. Tang Y, Wang F, Xie G, Liu J, Li L, Su L, et al. Reduced ventral anterior cingulate and amygdala volumes in medication-naive females with major depressive disorder: A voxel-based morphometric magnetic resonance imaging study. Psychiatry Research. 2007; 156(1): 83-6.
138. Treadway MT, Grant MM, Ding Z, Hollon SD, Gore JC, Shelton RC. Early adverse events, HPA activity and rostral anterior cingulate volume in MDD. PLoS One. 2009; 4(3): e4887.
139. Koutsouleris N, Gaser C, Jager M, Bottlender R, Frodl T, Holzinger S, et al. Structural correlates of psychopathological symptom dimensions in schizophrenia: a voxel-based morphometric study. NeuroImage. 2008; 39(4): 1600-12.
140. Moorhead TW, Job DE, Whalley HC, Sanderson TL, Johnstone EC, Lawrie SM. Voxel-based morphometry of comorbid schizophrenia and learning disability: analyses in normalized and native spaces using parametric and nonparametric statistical methods. NeuroImage. 2004; 22(1): 188-202.
141. Neckelmann G, Specht K, Lund A, Ersland L, Smievoll AI, Neckelmann D, et al. Mr morphometry analysis of grey matter volume reduction in schizophrenia: association with hallucinations. Int J Neurosci. 2006; 116(1): 9-23.
142. Sigmundsson T, Suckling J, Maier M, Williams S, Bullmore E, Greenwood K, et al. Structural abnormalities in frontal, temporal, and limbic regions and interconnecting white matter tracts in schizophrenic patients with prominent negative symptoms. The American journal of psychiatry. 2001; 158(2): 234-43.
143. Suzuki M, Nohara S, Hagino H, Kurokawa K, Yotsutsuji T, Kawasaki Y, et al. Regional changes in brain gray and white matter in patients with schizophrenia demonstrated with voxel-based analysis of MRI. Schizophrenia Research. 2002; 55(1-2): 41-54.
144. Ortiz-Gil J, Pomarol-Clotet E, Salvador R, Canales-Rodriguez EJ, Sarro S, Gomar JJ, et al. Neural correlates of cognitive impairment in schizophrenia. The British journal of psychiatry : the journal of mental science. 2011; 199(3): 202-10.
145. Watson DR, Anderson JM, Bai F, Barrett SL, McGinnity TM, Mulholland CC, et al. A voxel based morphometry study investigating brain structural changes in first episode psychosis. Behavioural brain research. 2012; 227(1): 91-9.
146. Keller SS, Wieshmann UC, Mackay CE, Denby CE, Webb J, Roberts N. Voxel based morphometry of grey matter abnormalities in patients with medically

intractable temporal lobe epilepsy: effects of side of seizure onset and epilepsy duration. J Neurol Neurosurg Psychiatry. 2002; 73(6): 648-55.

147. Pail M, Brazdil M, Marecek R, Mikl M. An optimized voxel-based morphometric study of gray matter changes in patients with left-sided and right-sided mesial temporal lobe epilepsy and hippocampal sclerosis (MTLE/HS). Epilepsia. 2010; 51(4): 511-8.

148. Bonilha L, Rorden C, Castellano G, Pereira F, Rio PA, Cendes F, et al. Voxel-based morphometry reveals gray matter network atrophy in refractory medial temporal lobe epilepsy. Arch Neurol. 2004; 61(9): 1379-84.

149. Bernasconi N, Duchesne S, Janke A, Lerch J, Collins DL, Bernasconi A. Whole-brain voxel-based statistical analysis of gray matter and white matter in temporal lobe epilepsy. NeuroImage. 2004; 23(2): 717-23.

150. Pell GS, Briellmann RS, Pardoe H, Abbott DF, Jackson GD. Composite voxel-based analysis of volume and T2 relaxometry in temporal lobe epilepsy. NeuroImage. 2008; 39(3): 1151-61.

151. Riederer F, Lanzenberger R, Kaya M, Prayer D, Serles W, Baumgartner C. Network atrophy in temporal lobe epilepsy: a voxel-based morphometry study. Neurology. 2008; 71(6): 419-25.

152. Santana MT, Jackowski AP, da Silva HH, Caboclo LO, Centeno RS, Bressan RA, et al. Auras and clinical features in temporal lobe epilepsy: a new approach on the basis of voxel-based morphometry. Epilepsy Res. 2010; 89(2-3): 327-38.

153. McMillan AB, Hermann BP, Johnson SC, Hansen RR, Seidenberg M, Meyerand ME. Voxel-based morphometry of unilateral temporal lobe epilepsy reveals abnormalities in cerebral white matter. NeuroImage. 2004; 23(1): 167-74.

154. Keller SS, Baker G, Downes JJ, Roberts N. Quantitative MRI of the prefrontal cortex and executive function in patients with temporal lobe epilepsy. Epilepsy Behav. 2009; 15(2): 186-95.

Table DS1 Peak voxels within each ICA network.

ICA Network		MNI coordinates		
		x	*y*	*z*
M1	Visual	-6	-74	8
M2	Visual	-10	-104	-4
		-8	-14	4
M3	Visual	46	-66	-10
		-46	-76	-4
		-28	-70	-20
		30	-48	-18
M4	Default Mode	2	-58	30
		-44	-60	24
		2	56	-4
		54	-62	28
M5	Cerebellar	-4	-50	-34
M6	Sensori-motor	44	-16	48
		-38	-26	56
		0	-12	50
M7	Auditory	-62	-24	14
		60	0	-2
M8	Executive	0	36	22
		-28	54	14
		30	52	14
		4	-18	8
		12	-76	34
		-6	-78	34
M9	Fronto-parietal	56	-50	46
		52	12	42
		6	32	40
		-48	-52	50
M10	Fronto-parietal	-42	50	-2
		-32	-68	48
		-62	-54	-8
		-4	24	42

Table DS2 Abnormalities consistently found across neurological disorders.

Cluster	Volume (mm^3)	MNI coordinates x	y	z	Label
1	142496	10	4	8	R Caudate
		0	-16	10	L Thalamus
		-28	-38	-2	L Hippocampus
		-10	10	8	L Caudate
		-30	-16	-18	L Parahippocampus
		42	-10	8	R Insula
		28	-6	-18	R Parahippocampus
		50	12	24	R Inferior frontal gyrus
		52	-10	38	R Precentral gyrus
		12	-32	2	R Thalamus
		2	2	-12	L Anterior cingulate
		-40	6	4	L Insula
		-48	10	24	L Inferior frontal gyrus
		38	-24	-14	R Hippocampus
		-54	-14	44	L Postcentral gyrus
		56	-20	46	R Postcentral gyrus
		-46	10	48	L Middle frontal gyrus
		-24	0	10	L Putamen
		24	4	8	R Putamen
		54	-16	-8	R Superior temporal gyrus
		-58	-4	4	L Precentral gyrus
		-48	16	-18	L Superior temporal gyrus
		-40	-14	-32	L fusiform
2	4240	0	38	24	Left cingulate
		-2	46	24	L medial frontal gyrus
		4	48	14	R medial frontal gyrus
		-4	30	16	L anterior cingulate
3	3640	-46	-30	46	L inferior parietal lobe
4	2672	-32	-20	60	L Precentral gyrus
		-32	-34	62	L inferior parietal lobe
5	2504	-40	-64	-12	L fusiform
6	1864	58	-52	-10	Right inferior temporal gyrus
7	1336	4	-10	30	R Cingulate gyrus
8	1168	20	-72	24	R Cuneus
9	1120	52	-64	40	R Parietal lobe
11	1016	8	-24	54	R paracentral gyrus
		0	-32	52	L precuneus gyrus
		8	-24	44	R cingulate gyrus
12	848	-28	-88	20	L middle occipital gyrus
13	808	-28	44	18	L Middle frontal gyrus

14	720	-54	-52	34	L parietal gyrus
15	640	-60	-52	6	L middle temporal gyrus
16	616	-24	-76	40	L precuneus gyrus
17	600	26	-4	50	R middle frontal gyrus
18	592	-42	54	-10	L Inferior frontal gyrus
19	568	30	-86	30	R cuneus
		32	-90	20	R middle occipital gyrus
20	560	46	-58	52	R superior parietal gyrus
21	552	12	-50	24	R posterior cingulate gyrus
22	536	-4	8	34	L cingulate gyrus
23	488	62	-42	12	R superior temporal gyrus
24	456	8	-6	58	R medial frontal gyrus
25	424	54	26	14	R Inferior frontal gyrus
26	392	28	52	20	R superior frontal gyrus
27	336	32	32	40	R middle frontal gyrus
28	288	18	34	32	R medial frontal gyrus
29	272	-48	-32	2	L Superior temporal gyrus
30	272	-64	-34	14	L Superior temporal gyrus
31	264	6	10	56	R medial frontal gyrus

Table DS3 Abnormalities consistently found across psychiatric disorders.

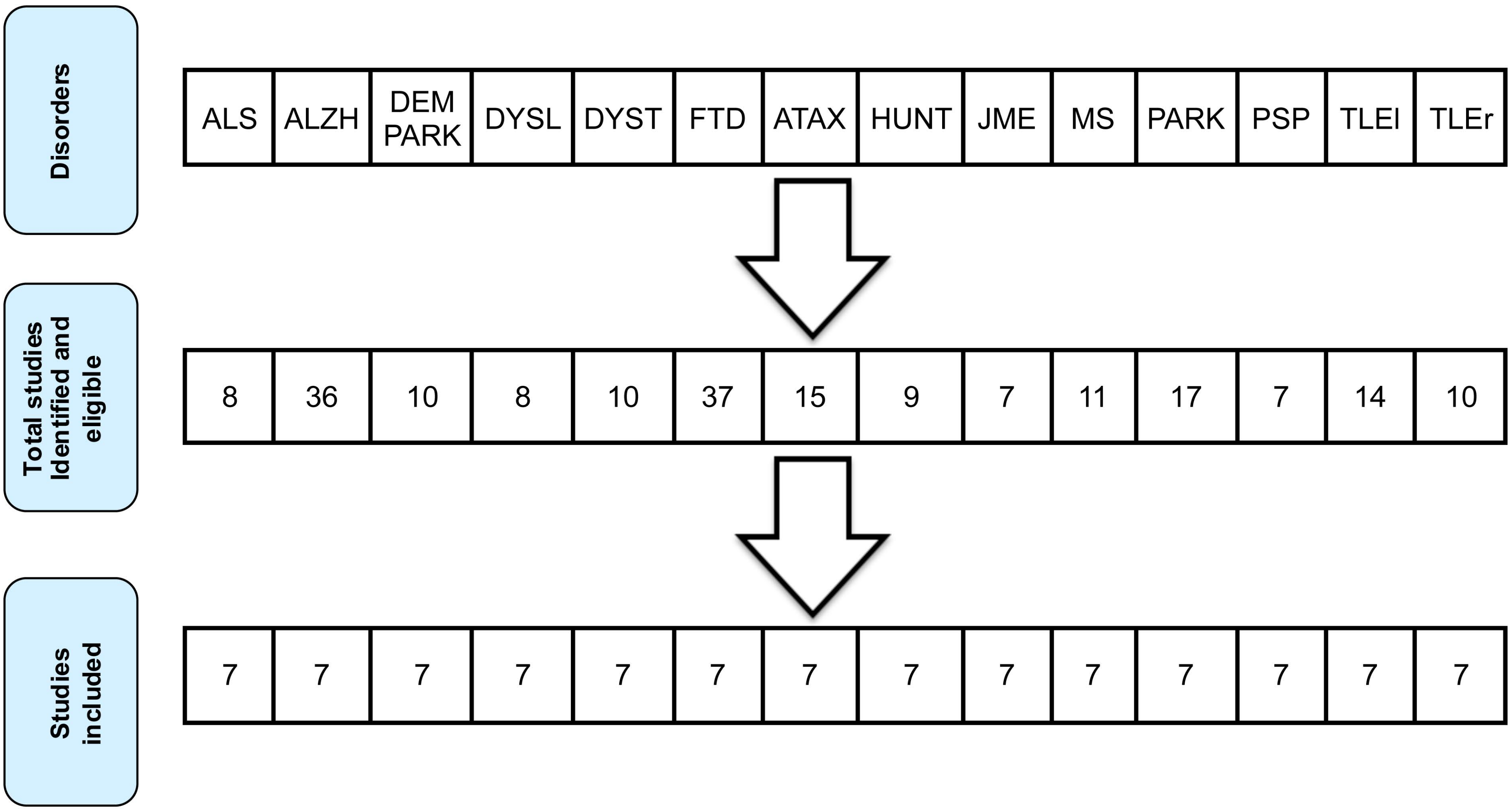
Cluster	Volume (mm^3)	MNI Coordinates x	y	z	Label
1	14576	8	14	0	R Caudate
		-20	-6	-22	L amygdala
		-2	8	-2	L caudate head
		-18	4	12	L putamen
		-34	-26	-28	L parahippocampal gyrus
		-30	-12	-18	L hippocampus
		-16	2	-10	L globus pallidum
		-36	-14	-38	L uncus
		4	18	12	R caudate
2	10104	-6	48	-8	L anterior cingulate
		-2	48	26	L medial frontal gyrus
		10	60	26	R superior frontal gyrus
		6	48	-2	R anterior cingulate
		16	64	-2	R medial frontal gyrus
		2	38	44	L superior frontal gyrus
3	7056	54	6	6	R precentral gyrus
		16	26	-18	R inferior frontal gyrus
		36	20	4	R insula
		34	40	-16	R middle frontal gyrus
4	4504	44	-76	8	R middle occipital gyrus
		44	-78	-12	R fusiform gyrus
		56	-64	-2	R inferior temporal gyrus
5	4456	-22	-20	70	L precentral gyrus
		-12	-28	60	L paracentral gyrus
6	3752	-12	-66	20	L posterior cingulate
		-12	-50	2	L lingual gyrus
		-16	-40	6	L parahippocampal gyrus
7	3712	2	-82	8	L lingual gyrus
		-10	-88	12	L cuneus
8	2952	18	-6	-24	R parahippocampal gyrus
		34	-6	-26	R amygdala
9	2840	-56	2	-4	L superior frontal gyrus
		-46	8	-10	L insula
10	2464	-36	22	-2	L insula
11	2032	-4	16	26	L cingulate gyrus
12	1936	38	46	16	R middle frontal gyrus
13	1680	32	-22	-16	R hippocampus

14	1504	12	42	-30	R inferior frontal gyrus
		4	38	-26	R medial frontal gyrus
		-2	42	-32	L orbital gyrus
		-2	36	-34	L rectal gyrus
15	1368	-44	-68	10	L middle temporal gyrus
16	1288	42	-52	-20	R fusiform gyrus
17	1208	64	-4	0	R superior temporal gyrus
18	1064	2	-6	8	L thalamus
		4	-14	10	R thalamus
19	1016	-46	4	34	L precentral gyrus
20	976	28	-96	-4	R lingual gyrus
		20	-92	-4	R inferior occipital gyrus
21	976	-66	-20	6	L superior temporal gyrus
		-64	-32	10	L superior temporal gyrus
22	944	-46	38	-16	L middle frontal gyrus
23	840	42	28	36	R precentral gyrus
24	824	-58	22	14	L inferior frontal gyrus
25	808	48	-18	12	R insula
26	800	-24	-58	-2	L parahippocampal gyrus
27	728	12	-26	44	R cingulate gyrus
28	712	50	36	-14	R middle frontal gyrus
29	704	40	-14	-38	R uncus
30	624	10	28	50	R superior frontal gyrus
31	528	-22	-2	-46	L uncus
32	528	-18	54	24	L superior frontal gyrus
33	504	58	-38	-14	R middle temporal gyrus
34	504	-8	2	54	L medial frontal gyrus
35	488	54	6	-20	R superior temporal gyrus
36	480	30	-52	46	R superior parietal lobule
		32	-52	56	R precuneus
37	456	-52	-32	24	L inferior parietal gyrus
38	424	-22	4	68	L superior frontal gyrus
39	384	-4	-30	74	L paracentral lobule
40	376	30	4	2	R putamen
41	352	-20	-102	14	L middle occipital gyrus
42	352	-16	42	16	L medial frontal gyrus

43	344	-10	12	-22	L medial frontal gyrus
44	344	24	46	18	R medial frontal gyrus
		16	40	16	R anterior cingulate
45	280	50	14	-34	R superior temporal gyrus
46	272	-32	34	32	L middle frontal gyrus
47	264	-34	-92	-8	L inferior occipital gyrus
48	256	-16	-54	36	L cingulate gyrus
		-10	-58	32	L precuneus
49	232	2	-12	56	L medial frontal gyrus
50	208	-8	-94	-2	L inferior frontal gyrus

Figure DS1. Flow diagram of study selection.

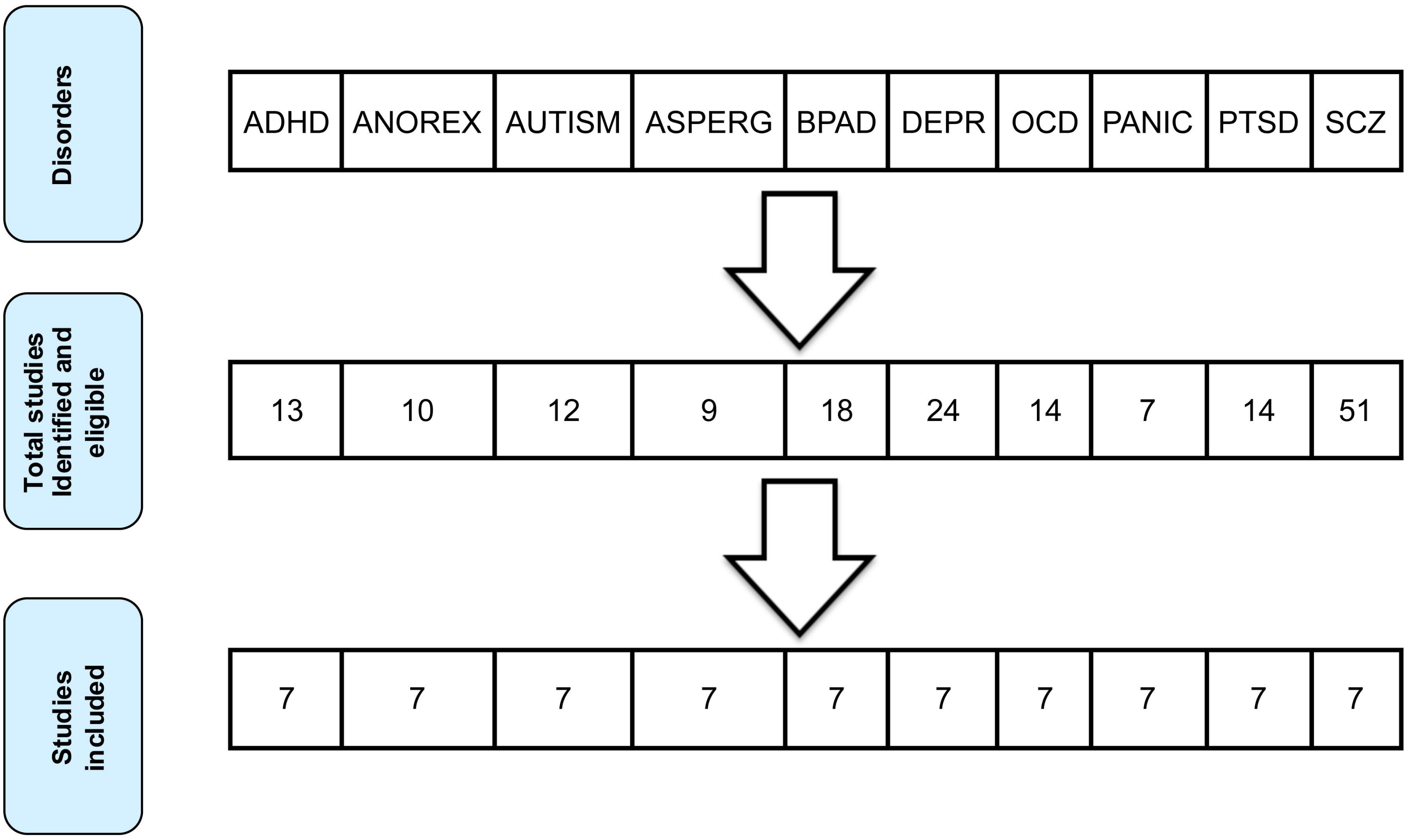
A. Neurological Disorders



Disorders	ALS	ALZH	DEM PARK	DYSL	DYST	FTD	ATAX	HUNT	JME	MS	PARK	PSP	TLEl	TLEr
Total studies Identified and eligible	8	36	10	8	10	37	15	9	7	11	17	7	14	10
Studies included	7	7	7	7	7	7	7	7	7	7	7	7	7	7

Abbreviations: ALS=Amyotrophic lateral sclerosis; ALZH=Alzheimer's; DEM PARK=Dementia in Parkinson's; DYSL=Dyslexia; DYST=Dystonia; FTD=Frontotemporal dementia; ATAX=Ataxia; HUNT=Huntington's disease; JME=Juvenile myoclonic epilepsy; MS=Multiple sclerosis; PARK=Parkinson's; PSP=Progressive supranuclear palsy; TLEl=Temporal lobe epilepsy, left; TLEr=Temporal lobe epilepsy, right.

B. Psychiatric Disorders



Disorders	ADHD	ANOREX	AUTISM	ASPERG	BPAD	DEPR	OCD	PANIC	PTSD	SCZ
Total studies Identified and eligible	13	10	12	9	18	24	14	7	14	51
Studies included	7	7	7	7	7	7	7	7	7	7

Abbreviations: ADHD=Attention deficit hyperactivity disorder; ANOREX=Anorexia nervosa; ASPERG=Asperger syndrome; BPAD=Bipolar affective disorder; DEPR=Major depressive disorder; OCD=Obsessive compulsive disorder; PANIC=Panic disorder; PTSD=Post-traumatic stress disorder; SCZ=Schizophrenia.

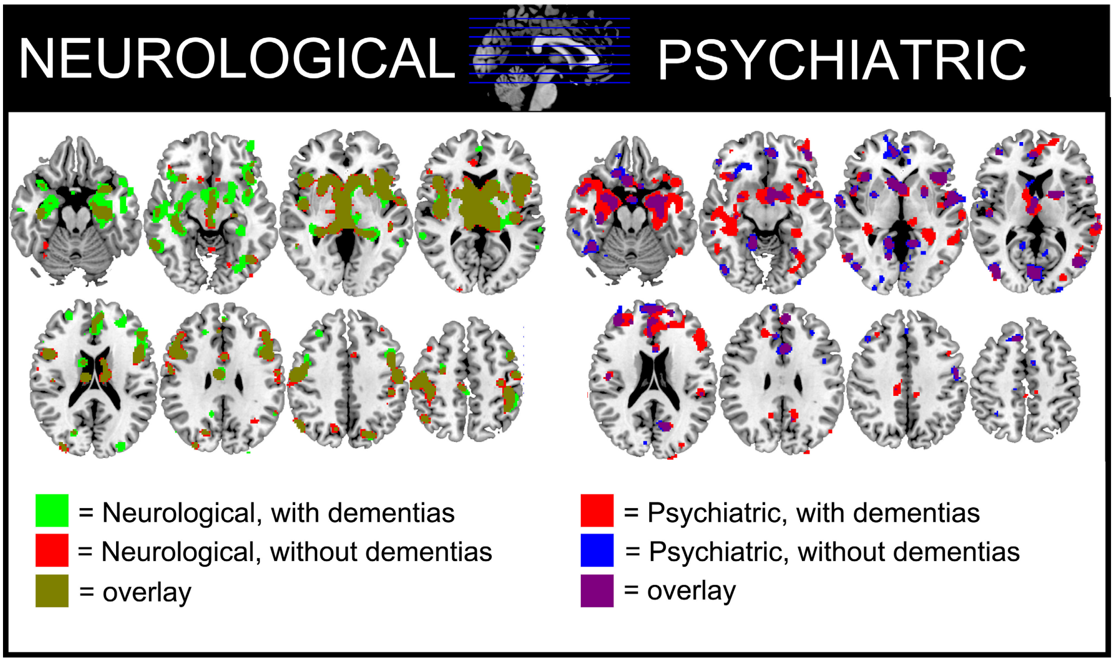


Figure DS2 Effect of classifying dementias (Alzheimer's, Dementia in Parkinson's, Frontotemporal) as neurological or psychiatric disorders. Note that differences between the two statistical analyses are mostly limited to temporal lobe regions; these regions tend to be primarily implicated in the class of disorders that includes the dementias.

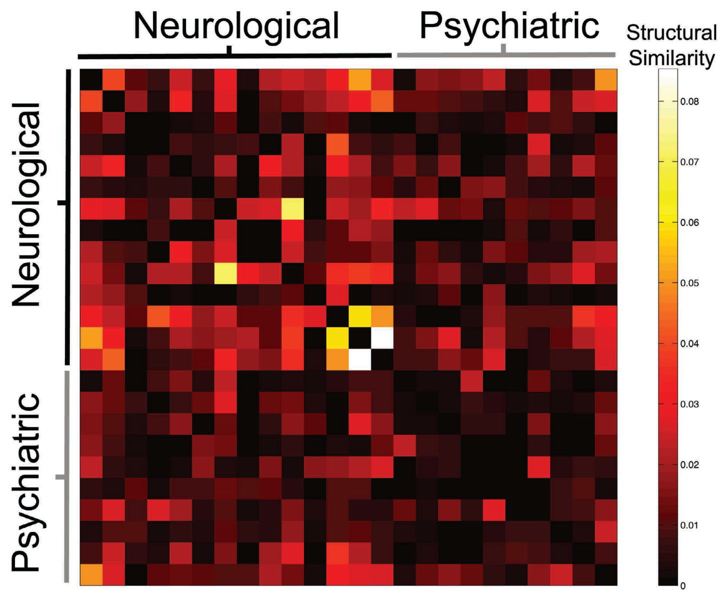


Figure DS3 Heatmap of similarity between disorders. Note that neurological disorders were significantly more similar than psychiatric disorders ($P<0.015$).