Common Pattern of Gray Matter Abnormalities in Drug-Naive and Medicated First Episode Schizophrenia: A Multimodal Meta-analysis

**SUPPLEMENTARY MATERIAL**

**Table S1: Demographic information of AN-FES (antipsychotic naïve-first episode schizophrenia) studies.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | FES participants | | | | | | Control participants | | | General data | | |
| Study | Number | %Male | Age [mean] | DOI [months] | PANSS-P | PANSS-N | Number | % Male | Age [mean] | Software | MRI acquisition | DSM criteria |
| (Salgado-Pineda et al., 2003) | 13 | 100% | 23.76 | NA | NA | NA | 13 | 100% | 23.36 | SPM99 | 1.5T | DSM-IV |
| (Jayakumar et al., 2005) | 18 | 50% | 24.9±6.3 | 10.3 | 19 | 23 | 18 | 50% | 25.7±7.5 | SPM2 | 1.5T | DSM-IV |
| (Prasad et al., 2007) | 15 | 73% | 26 | NA | NA | NA | 7 | 43% | 24 | SPM2 | 1.5T | DSM-IV |
| (Chua et al., 2007) | 26 | 46% | 32 | 3.9 | NA | NA | 38 | 47% | 33 | BAMM | 1.5T | DSM-IV |
| (Meda et al., 2008) | 22 | 64% | 25.09 | NA | NA | NA | 21 | 62% | 26.238±7.49 | SPM2 | 1.5T | DSM-III-R/DSM-IV |
| (Witthaus et al., 2009) | 23 | 70% | 26.4±6.1 | NA | 19.3 | 18 | 29 | 59% | 25.7±5.2 | SPM2 | 1.5T | NA |
| (Venkatasubramanian, 2010) | 30 | 70% | 30.1±8.3 | 41.7 | 22 | 23 | 27 | 70% | 27.4±7.0 | SPM2 | 1.5T | DSM-IV |
| (Berge et al., 2011) | 21 | 51% | 24.81 | NA | 26.19 | 17.48 | 20 | 40% | 25.3 | SPM5 |  | DSM-IV |
| (Ren et al., 2013) | 100 | 41% | 24.3 | 6.25 | 25.11 | 18.84 | 100 | 41% | 24.39 | SPM8 | 3T | DSM-IV |
| (Guo et al., 2013)[a] | 27 | 59% | 25.1 | 1.63 | 24.3 | 13.8 | 30 | 53% | 25.6 | SPM8 | 1.5T | DSM-IV |
| (Guo et al., 2013) [b] | 30 | 53% | 25.7 | 13.85 | 23 | 16 | 30 | 53% | 25.6 | SPM8 | 1.5T | DSM-IV |
| (Guo et al., 2014) | 51 | 65% | 22.5±4.1 | 8.4 | 22.8 | 22.4 | 41 | 59% | 22.8±3.9 | SPM8 | 3.0T | DSM-IV |
| (Guo et al., 2015) | 49 | 61% | 22.69±4.62 | 22.45 | 22.27 | 22.82 | 50 | 46% | 23.48±2.49 | SPM8 | 3.0T | DSM-IV |
| (Nenadic et al., 2015) | 24 | 50% | 24.9 | 4.1 | 30.4 | 29.1 | 49 | 53% | 23.8 | SPM8 | 3.0T | NA |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | FES participants | | | | | | | Control participants | | | General data | | |
| Study | Number | % Male | Age[mean] | DOI [months] | Treatment  duration [days] | PANSS-P | PANSS-N | Number | % Male | Age[mean] | Software | MRI acquisition | Diagnosis Criteria |
| (Job et al., 2002) | 34 | 68% | 21.35 | NA | NA | NA | NA | 36 | 47% | 21.17 | SPM99 | 1.0T |  |
| (Kubicki et al., 2002) | 16 | 88% | 26±7.5 | 1.7 | 51 | NA | NA | 18 | 89% | 24±4.5 | SPM99 | 1.5T | DSM-III |
| (Kasparek et al., 2007) | 22 | 100% | 23.7 | 9.6 | 49 | 9.1 | 15.4 | 18 | 100% | 24.1 | SPM2 | 1.5T | ICD-10 |
| (Whitford et al., 2006) | 41 | 63% | 19.8 | 3 | 252 | 17.7 | 18.8 | 47 | 70% | 19.3 | SPM2 | 1.5T | DSM-IV |
| (Douaud et al., 2007) | 25 | 72% | 16.2±1.4 | 16.7 | NA | 22 | 16 | 25 | 68% | 16.5±1.6 | SPM2 | 1.5T | DSM-IV |
| (Meisenzahl et al., 2008) | 93 | 72% | 28.2 | 9.1 | 168 | 19.9 | 20.4 | 177 | 69% | 31.5 | SPM2 | 1.5T | DSM-IV |
| (Yoshihara et al., 2008) | 18 | 50% | 15.8 | 14.3 | NA | 13.8 | 19.1 | 18 | 50% | 15.8 | BAMM | 1.5T | DSM-IV |
| (Molina et al., 2010) | 30 | 67% | 25.8 | 14.5 | 7 | 21.9 | 19.2 | 40 | 58% | 29.4 | SPM5 | 1.5T | DSM-IV |
| (de Castro-Manglano et al., 2011) | 10 | 50% | 18.6 | 6.5 | 170 | 17.2 | 19.1 | 20 | 95% | 20.5 | SPM2 | 1.5T | DSM-IV/ ICD-10 |
| (Tang et al., 2012) | 29 | 55% | 16.5±0.9 | 9.3 | 282 | 22.3 | 20 | 34 | 53% | 16.6±0.8 | SPM5 | 1.5T | DSM-IV |
| (Nakamura et al., 2013) | 34 | 59% | 24.7 | 1.7 | 51 | NA | NA | 51 | 59% | 23.9 | SPM8 | 1.5T | ICD-10 |

**Table S2: Demographic information of AT-FES (antipsychotic treated-first episode schizophrenia) studies.**

**Table S3: Gray matter abnormalities in AN-FES.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| GM INCREASE | Description | MNI coordinate | Cluster breakdown | Voxels | SDM-Z | P |
|  | Left inferior parietal (excluding supramarginal and angular) gyri, BA 40 | -60,-34,40 | Left inferior parietal (excluding supramarginal and angular) gyri,[360] BA 1,BA2,BA3,BA40 Left supramarginal gyrus, [187] BA 1,BA2,BA3,BA40,BA48 | 634 | 1.532 | 0.000273526 |
|  | Left paracentral lobule, BA 6 | -14,-18,76 | Left paracentral lobule, [350] BA 4,BA6 Left precentral gyrus, [137] BA 6 Left supplementary motor area, [49] BA 6 | 599 | 1.768 | 0.000020623 |
| GM DECREASE | Description | MNI coordinate | Cluster breakdown | Voxels | SDM-Z | P |
|  | Left insula, BA 48 | -44,-6,-4 | Left insula, [712] BA 38 Left superior temporal gyrus, [607] BA 21,22,38, 41, 42, 48 Left rolandic operculum, [463] BA 48 Left temporal pole, superior temporal gyrus, [357] BA 20, BA21 , BA38,BA48 Left heschl gyrus, [175] BA 22,BA48 Left lenticular nucleus, putamen, [87] BA 48 Left inferior frontal gyrus, opercular part,[63] BA 48 Left postcentral gyrus, [45] BA 48 Left inferior frontal gyrus, orbital part, [30] BA 38,BA47 Left supramarginal gyrus, [16] BA 42,BA48 | 3230 | -3.783 | ~0 |
|  | Right insula, BA 48 | 40,-8,-8 | Right insula, [569] BA 48 Right superior temporal gyrus, [502] BA 20,BA21, BA22, BA38,BA48 Right middle temporal gyrus, [222] BA 20,BA21, BA22, BA48 Right lenticular nucleus, putamen, [140] BA 48 Right rolandic operculum, [101] BA 48 Right heschl gyrus, [99] BA 48 Right temporal pole, superior temporal gyrus, [56] BA 21, BA38,BA48 Right striatum [18] | 2454 | -3.848 | ~0 |
|  | Right superior frontal gyrus, medial orbital | 2,46,-2 | Right anterior cingulate / paracingulate gyri, [201] BA10, BA11, BA24,BA32 Left anterior cingulate / paracingulate gyri, [130] BA 10, BA11, BA24, BA32 Right superior frontal gyrus, medial orbital, [71] BA 10 ,BA 11 Right superior frontal gyrus, medial, [22] BA 10 Left superior frontal gyrus, medial orbital, [22] BA 10,BA11 | 454 | -2.426 | 0.001367629 |
|  | Left fusiform gyrus, BA 37 | -24,-48,-16 | Left fusiform gyrus,[203] BA 19, BA30, BA37 Left cerebellum, hemispheric lobule IV / V, [38] BA 30, BA 37 Left parahippocampal gyrus, [21] BA 30 | 360 | -2.465 | 0.001186967 |

**Table S4: Gray matter abnormalities in AT-FES.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| GM INCREASE | Description | MNI coordinate | Cluster breakdown | Voxels | SDM-Z | P |
|  | Right inferior occipital gyrus, BA 17 | 24,-100,2 | Right inferior occipital gyrus,[120] BA 17,BA 18, BA 19 Right middle occipital gyrus,[80] BA 17,BA 18, BA 19 Right superior occipital gyrus,[32] BA 17, BA 18 | 501 | 1.181 | 0.000051618 |
|  | Right superior frontal gyrus, dorsolateral, BA 6 | 20,-10,66 | Right superior frontal gyrus, dorsolateral,[159] BA 6 Right precentral gyrus,[40] BA 6 Right supplementary motor area,[23] BA 6 | 277 | 1.036 | 0.00067091 |
|  |  |  |  |  |  |  |
| GM DECREASE | Description | MNI coordinate | Cluster breakdown | Voxels | SDM-Z | P |
|  | Left middle temporal gyrus, BA 22 | -58,-14,-6 | Left middle temporal gyrus,[770] BA 20, BA 21, BA 22, BA 37, BA 42, BA 48 Left superior temporal gyrus,[229] BA 21, BA 22, BA 41, BA 42, BA 48 Left insula,[157] BA 38, BA 47 BA 48 Left post central gyrus, [137] BA 4, BA 6, BA 22, BA 43, BA 48 Left inferior frontal gyrus,opercular part,[101] BA 6 BA 44, BA 48 Left temporal pole superior temporal gyrus, [73] BA 21, BA 38, BA 48 Left inferior frontal gyrus, orbital part, [58] BA 11, BA 38, BA 47 Left precental gyrus, [43] BA 4, BA 6, BA 43, BA 44, BA 48 Left supramarginal gyrus, [21] BA 48 Left inferior frontal gyrus, [20] BA 45, BA 47, BA 48 | 2210 | -4.147 | ~0 |
|  | Left anterior cingulate / paracingulate gyri, BA 24 | -2,36,16 | Left anterior cingulate / paracingulate gyri, [647] BA 10, BA 11, BA 24, BA 25, BA 32 Right anterior cingulate / paracingulate gyri, [356] BA 10, BA 11, BA 24, BA 25, BA 32 Left superior frontal gyrus, medial, [144] BA 10, BA 11 Left supplementary motor area, [79] BA 6, BA 8, BA 32 Right superior frontal gyrus, medial orbital, [75] BA 10, BA 11 Right median cingulate/paracingulate gyri, [74] BA 9, BA 23, BA 24, BA 32 Right supplementary motor area, [71] BA 6, BA 8, BA 24, BA 32 Right superior frontal gyrus, media, [52] BA 9, BA 10, BA 32 Left median cingulate/ paracingulate gyrus, [44] BA 23, BA 24, BA 32 Left superior frontal gyrus, medial orbital, [35] BA 10, BA 11 | 1947 | -4.451 | ~0 |
|  | Right postcentral gyrus, BA 43 | 66,-6,16 | Right post central gyrus, [244] BA 3, BA 4, BA 6, BA 43, BA 48 Right precentral gyrus, [200] BA 4, BA 6, BA 43, BA 44 Right superior temporal gyrus, [166] BA 21, BA 22, BA 41 BA 42, BA 48 Right inferior frontal gyrus, opercular part, [109] BA 6, BA 44, BA 45, BA 48 Right supramarginal gyrus,[76] BA 2, BA 42, BA 43, BA 48 Right ronaldic operculum,[66] BA 6, BA 48 Right inferior frontal gyrus, triangular part,[64] BA 45, BA 46, BA 47, BA 48 Right inferior frontal gyrus, orbital part,[12] BA 45, BA 46, BA 47 Right insula, [11] BA 48 | 1111 | -3.133 | 0.000072241 |
|  | Left inferior temporal gyrus, BA 20 | -44,-22,-28 | Left inferior temporal gyrus,[13] BA 20 | 21 | -2.785 | 0.000846386 |
|  |  |  |  |  |  |  |

**Table S5: Jack-knife analysis of studies in AN-FES.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Study | Left paracentral lobule | Left inferior parietal gyri | Left insula | Right insula | Right superior frontal gyrus, medial orbital | Left fusiform gyrus |
| **(Salgado-Pineda *et al.*, 2003)** | Y | Y | Y | Y | Y | Y |
| **(Jayakumar *et al.*, 2005)** | Y | Y | Y | Y | Y | Y |
| **(Prasad *et al.*, 2007)** | Y | Y | Y | Y | Y | Y |
| **(Chua *et al.*, 2007)** | Y | Y | Y | Y | Y | Y |
| **(Meda *et al.*, 2008)** | Y | Y | Y | Y | Y | Y |
| **(Witthaus *et al.*, 2009)** | Y | Y | Y | Y | N | Y |
| **(Venkatasubramanian, 2010)** | Y | Y | Y | N | Y | Y |
| **(Berge *et al.*, 2011)** | Y | Y | Y | Y | Y | Y |
| **(Ren *et al.*, 2013)** | N | N | Y | Y | N | Y |
| **(Guo *et al.*, 2013)[a]** | Y | Y | Y | Y | Y | Y |
| **(Guo *et al.*, 2013) [b]** | Y | Y | Y | N | Y | Y |
| **(Guo *et al.*, 2014)** | Y | Y | N | Y | Y | Y |
| **(Guo *et al.*, 2015)** | Y | Y | Y | Y | N | N |
| **(Nenadic *et al.*, 2015)** | Y | Y | Y | Y | Y | Y |
|  | 13/14 | 13/14 | 13/14 | 12/14 | 11/14 | 13/14 |

**Table S6: Jack-knife analysis of studies in AT-FES.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Study | Right inferior occipital gyrus, BA 17 | Right superior frontal gyrus, dorsolateral, BA 6 | Left middle temporal gyrus, BA 22 | Left anterior cingulate / paracingulate gyri, BA 24 | Right post central gyrus BA, 43 | Left inferior temporal gyrus, BA 20 |
| **(Job et al., 2002)** | Y | Y | Y | Y | Y | Y |
| **(Kubicki et al., 2002)** | Y | Y | Y | Y | Y | Y |
| **(Kasparek et al., 2007)** | Y | Y | Y | Y | Y | Y |
| **(Whitford et al., 2006)** | N | N | Y | Y | Y | Y |
| **(Douaud et al., 2007)** | Y | Y | Y | Y | Y | N |
| **(Meisenzahl et al., 2008)** | Y | Y | Y | Y | Y | N |
| **(Yoshihara et al., 2008)** | Y | Y | Y | Y | Y | Y |
| **(Molina et al., 2010)** | Y | Y | Y | Y | Y | Y |
| **(de Castro-Manglano et al., 2011)** | Y | Y | Y | Y | Y | Y |
| **(Tang et al., 2012)** | Y | Y | Y | Y | Y | Y |
| **(Nakamura et al., 2013)** | Y | Y | Y | Y | Y | Y |
|  | 10/11 | 10/11 | 11/11 | 11/11 | 11/11 | 9/11 |

**Table S7.**

A: Subgroup analysis AN-FES (studies using 1.5 T MRI acquisitions).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| GM INCREASE | Description | MNI coordinate | Voxels | SDM-Z | P |
|  | NONE | | | |  |
| GM DECREASE | Description | MNI coordinate | Voxels | SDM-Z | P |
|  | Left insula, BA 48 | -50,-8,6 | 3340 | -2.895 | ~0 |
|  | Right insula, BA 48 | 46,-10,0 | 2827 | -2.765 | ~0 |
|  | Left fusiform gyrus, BA 37 | -32,-50,-16 | 391 | -2.14 | 0.000505745 |
|  | Left median cingulate/paracingulate gyri, BA 23 | 0,-10,36 | 79 | -1.799 | 0.003612578 |
|  | Left posterior cingulate gyrus, BA 23 | -2,-48,32 | 49 | -1.829 | 0.003101647 |

B: Subgroup analysis AN-FES (studies applying slice thickness ≤1.5mm).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| GM INCREASE | Description | MNI coordinate | Voxels | SDM-Z | P |
|  | Left inferior parietal (excluding supramarginal and angular) gyri, BA 40 | -62,-34,40 | 433 | 1.568 | 0.000443816 |
|  | Left paracentral lobule, BA 6 | -16,-18,74 | 598 | 1.751 | 0.00009805 |
| GM DECREASE | Description | MNI coordinate | Voxels | SDM-Z | P |
|  | Left insula, BA 48 | -42,-8,-6 | 2718 | -3.595 | 0.000010312 |
|  | Right insula, BA 48 | 40,-8,-10 | 1970 | -3.813 | ~0 |
|  | Right superior frontal gyrus, medial orbital | 4,42,10 | 908 | -2.608 | 0.000443816 |
|  | Left fusiform gyrus, BA 37 | -10,-34,-10 | 68 | -2.29 | 0.001899183 |

C: Subgroup analysis AN-FES (studies using SPM software).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| GM INCREASE | Description | MNI coordinate | Voxels | SDM-Z | P |
|  | Left paracentral lobule, BA 6 | -16,-20,74 | 619 | 1.725 | 0.000092924 |
|  | Left inferior parietal (excluding supramarginal and angular) gyri, BA 40 | -60,-32,40 | 478 | 1.483 | 0.000418007 |
| GM DECREASE | Description | MNI coordinate | Voxels | SDM-Z | P |
|  | Left insula, BA 48 | -42,-8,-6 | 2756 | -3.454 | 0.000020623 |
|  | Right insula, BA 48 | 40,-8,-10 | 2067 | -3.538 | 0.000015497 |
|  | Right superior frontal gyrus, medial orbital | 4,44,8 | 635 | -2.45 | 0.000970244 |
|  | Left fusiform gyrus, BA 37 | -30,-52,-14 | 407 | -2.475 | 0.000861883 |

**Table S8.**

A: Subgroup analysis AT-FES (studies using 1.5 T MRI acquisitions).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| GM INCREASE | Description | MNI coordinate | Voxels | SDM-Z | P |
|  | Right inferior occipital gyrus, BA 17 | 24,-100,2 | 535 | 1.201 | 0.000041306 |
|  | Right superior frontal gyrus, dorsolateral, BA 6 | 20,-10,66 | 302 | 1.056 | 0.000449002 |
|  | Right superior frontal gyrus,medial,BA10 | 12,68,18 | 52 | 1.012 | 0.008412 |
| GM DECREASE | Description | MNI coordinate | Voxels | SDM-Z | P |
|  | Left middle temporal gyrus, BA 22 | .-60,-14,-4 | 1908 | -4.087 | ~0 |
|  | Left anterior cingulate / paracingulate gyri, BA 24 | .-2,30,18 | 1586 | -4.319 | ~0 |
|  | Right postcentral gyrus, BA 43 | 62,-8,26 | 1106 | -3.349 | 0.000010312 |
|  | Left inferior temporal gyrus, BA 20 | -44,-22,-28 | 22 | -2.685 | 0.001620471 |

B: Subgroup analysis AT-FES (studies applying slice thickness ≤1.5mm).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| GM INCREASE | Description | MNI coordinate | Voxels | SDM-Z | P |
|  | Right inferior occipital gyrus, BA 17 | 24,-100,2 | 528 | 1.251 | 0.000051618 |
|  | Right superior frontal gyrus, dorsolateral, BA 6 | 20,-10,66 | 283 | 1.091 | 0.000526428 |
|  | Right superior frontal gyrus,medial,BA,10 | 12,68,18 | 43 | 1.406 | 0.001001179 |
| GM DECREASE | Description | MNI coordinate | Voxels | SDM-Z | P |
|  | Left anterior cingulate / paracingulate gyri, BA 24 | 0,30,18 | 2000 | -4.904 | ~0 |
|  | Left middle temporal gyrus, BA 22 | .-58,-16,-4 | 1368 | -3.436 | 0.000005186 |
|  | Right postcentral gyrus, BA 43 | 46,-2,48 | 860 | -3.37 | 0.000025809 |
|  | Right inferior frontal gyrus, BA 45 | 44,38,-2 | 51 | -2.731 | 0.001367629 |
|  | Right temporal pole superior temporal gyrus, BA 38 | 52,8,-16 | 34 | -2.753 | 0.001238585 |

C: Subgroup analysis AT-FES (studies using SPM software).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| GM INCREASE | Description | MNI coordinate | Voxels | SDM-Z | P |
|  | Right inferior occipital gyrus, BA 17 | 24,-100,2 | 542 | 1.208 | 0.00003612 |
|  | Right superior frontal gyrus, dorsolateral, BA 6 | 20,-10,66 | 314 | 1.053 | 0.000381887 |
| GM DECREASE | Description | MNI coordinate | Voxels | SDM-Z | P |
|  | Left anterior cingulate / paracingulate gyri, BA 24 | -2,36,16 | 2083 | -4.562 | ~0 |
|  | Left middle temporal gyrus, BA 22 | -58,-14,-6 | 1923 | -4.562 | ~0 |
|  | Right postcentral gyrus, BA 43 | 60,-8,26 | 1184 | -3.313 | 0.000010312 |
|  | Left inferior temporal gyrus, BA 20 | .-46,-24,-30 | 15 | -2.646 | 0.000954747 |

**Table S9**

A: Heterogeneity of GM in antipsychotic naïve first episode schizophrenia patients

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Region | MNI coordinate x,y,z | SDM-Z | P-value | No. of voxels |
|
| Left fusiform gyrus, BA 37 | -36,-60,-16 | 2.052 | 0.000077426 | 303 |
| Left insula | -44,-18,6 | 1.432 | 0.000603795 | 172 |
| Right insula BA 48 | 44,-18,-8 | 1.905 | 0.000139356 | 53 |

B: Heterogeneity of GM in antipsychotic treated first episode schizophrenia patients

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
| Region | MNI coordinate x,y,z | SDM-Z | P-value | No. of voxels |
|
| Left middle temporal gyrus, BA 22 | -58,-14,-6 | -4.147 | ~0 | 2210 |
| Left anterior cingulate / paracingulate gyrus, BA 24 | -2,36,16 | -4.451 | ~0 | 1947 |
| Right post central gyrus, BA 43 | 66,-6,16 | -3.133 | 0.000072241 | 1111 |
| Right inferior occipital gyrus, BA 17 | 24,-100,2 | 1.181 | 0.000051618 | 501 |
| Right superior frontal gyrus, dorsolateral, BA 6  Left inferior temporal gyrus, BA 20 | 20,-10,66  -44,-22,-28 | 1.036  -2.785 | 0.00067091  0.000846386 | 277  21 |

Table S10

A: Results of the studies after deletion of short duration of psychosis vs controls from (Guo *et al.*, 2013)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| GM INCREASE | Description | MNI coordinate | Cluster breakdown | Voxels | SDM-Z | P |
|  | Left paracentral lobule, BA 6 | -16,-20,74 | Left paracentral lobule, [428] BA4,6 Left precentral gyrus,[145]BA6 | 666 | 1.729 | 0.000051618 |
|  | Left inferior parietal (excluding supramarginal and angular) gyri, BA 40 | -60,-32,40 | Left inferior parietal (excluding supramarginal and angular) gyri,[305]BA2,3,40 Left supramarginal gyrus,[153] BA2,3,40,48 | 524 | 1.485 | 0.000407696 |
| GM DECREASE | Description | MNI coordinate | Cluster breakdown | Voxels | SDM-Z | P |
|  | Left insula, BA 48 | -42,-8,-6 | Left insula,[687] BA38,48 Left superior temporal gyrus,[516] BA21,22,38,42,48 Left rolandic operculum,[368] BA48 Left temporal pole, superior temporal gyrus, BA 20,[360] BA20,21,38,48 Left heschl gyrus,[172] BA48 Left lenticular nucleus, putamen,[127] BA34,48 Left inferior frontal gyrus, orbital part,[34] BA48 Left inferior frontal gyrus, opercular part, ,[18] BA38,47 | 2933 | -3.575 | ~0 |
|  | Right insula, BA 48 | 40,-8,-6 | Right insula, [597] BA 48 Right superior temporal gyrus, [389] BA 20,BA21, BA22, BA38,BA48 Right lenticular nucleus, putamen, [141] BA 48 Right middle temporal gyrus, [138] BA 20,BA21, BA22, BA48 Right rolandic operculum, [111] BA 48 Right heschl gyrus, [88] BA 48 Right temporal pole, superior temporal gyrus, [64] BA 21, BA38,BA48 Right striatum [15] | 2244 | -3.891 | ~0 |
|  | Right anterior cingulate / paracingulate gyri, BA 32 | 4,44,8 | Right anterior cingulate / paracingulate gyri, [279] BA10, BA11, BA24,BA32 Left anterior cingulate / paracingulate gyri, [225] BA 10, BA11, BA24, BA32 Right superior frontal gyrus, medial orbital, [65] BA 10 ,BA 11 Right superior frontal gyrus, medial, [38] BA 10,32 Left superior frontal gyrus, medial orbital, [20] BA 10,BA11 | 638 | -2.452 | 0.000996053 |
|  |  |  |  |  |  |  |

B: Results of the studies after deletion of long duration of psychosis vs controls from (Guo *et al.*, 2013)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| GM INCREASE | Description | MNI coordinate | Cluster breakdown | Voxels | SDM-Z | P |
|  | Left inferior parietal (excluding supramarginal and angular) gyri, BA 40 | -60,-32,40 | Left inferior parietal (excluding supramarginal and angular) gyri,[343] BA 1,BA2,BA3,BA40 Left supramarginal gyrus, [172] BA 1,BA2,BA3,BA40,BA48 | 600 | 1.49 | 0.000180602 |
|  | Left paracentral lobule, BA 6 | -16,-20,74 | Left paracentral lobule, [445] BA 4,BA6 Left precentral gyrus, [164] BA 6 Left supplementary motor area, [24] BA 6 Left postcentral gyrus,[13] | 712 | 1.734 | 0.000020623 |
| GM DECREASE | Description | MNI coordinate | Cluster breakdown | Voxels | SDM-Z | P |
|  | Left insula, BA 48 | -44,-6,-2 | Left insula, [702] BA 38 Left superior temporal gyrus, [592] BA 21,22,38, 41, 42, 48 Left rolandic operculum, [461] BA 48 Left temporal pole, superior temporal gyrus, [353] BA 20, BA21 , BA38,BA48 Left heschl gyrus, [176] BA 22,BA48 Left lenticular nucleus, putamen, [124] BA 48 Left inferior frontal gyrus, opercular part,[54] BA 48 Left postcentral gyrus, [42] BA 48 Left inferior frontal gyrus, orbital part, [30] BA 38,BA47 Left supramarginal gyrus, [15] BA 42,BA48 | 3249 | -3.869 | ~0 |
|  | Right insula, BA 48 | 44,-8,-2 | Right insula, [595] BA 48 Right superior temporal gyrus, [510] BA 20,BA21, BA22, BA38,BA48 Right middle temporal gyrus, [207] BA 20,BA21, BA22, BA48 Right lenticular nucleus, putamen, [141] BA 48 Right rolandic operculum, [144] BA 48 Right heschl gyrus, [114] BA 48 Right temporal pole, superior temporal gyrus, [57] BA 21, BA38,BA48 Right striatum [15] | 2539 | -4.032 | ~0 |
|  | Right anterior cingulate / paracingulate gyri, BA 32 | 4,44,8 | Right anterior cingulate / paracingulate gyri, [253] BA10, BA11, BA24,BA32 Left anterior cingulate / paracingulate gyri, [188] BA 10, BA11, BA24, BA32 Right superior frontal gyrus, medial, [31] BA 10 Left superior frontal gyrus, medial orbital, [54] BA 10,BA11 | 545 | -2.461 | 0.001197278 |

Related links for SDM analysis:

A: (Multimodal) GM decrease in AN-FES but increase in AT-FES

file:///D:/medicine/meta-analysis documents/2015-12-30/2016-2-25/2016-4-11/psychological medicine/ra-swa/final papers for reviewers/Image files/(multimodal) GM decrease in AN-FES but increase in AT-FES.htm

B: (Multimodal) GM decrease in both AN-FES and AT-FES

file:///D:/medicine/meta-analysis documents/2015-12-30/2016-2-25/2016-4-11/psychological medicine/ra-swa/final papers for reviewers/Image files/(multimodal) GM decrease in both AN-FES and AT-FES.htm

C: (Multimodal) GM increase in AN-FES but decrease in AT-FES

file:///D:/medicine/meta-analysis documents/2015-12-30/2016-2-25/2016-4-11/psychological medicine/ra-swa/final papers for reviewers/Image files/(multimodal) GM increase in AN-FES but decrease in AT-FES.htm

D: (Multimodal)GM increase in both AN-FES and AT-FES

file:///D:/medicine/meta-analysis documents/2015-12-30/2016-2-25/2016-4-11/psychological medicine/ra-swa/final papers for reviewers/Image files/(multimodal)GM increase in both AN-FES and AT-FES.htm

E: Results for AN-FES

file:///D:/medicine/meta-analysis documents/2015-12-30/2016-2-25/2016-4-11/psychological medicine/ra-swa/final papers for reviewers/Image files/Results for AN-FES.htm

F: Results for AT-FES

file:///D:/medicine/meta-analysis documents/2015-12-30/2016-2-25/2016-4-11/psychological medicine/ra-swa/final papers for reviewers/Image files/Results for AT-FES.htm

G: Results of the studies after deletion of short duration of psychosis vs controls from

file:///D:/medicine/meta-analysis%20documents/2015-12-30/2016-2-25/2016-4-11/psychological%20medicine/ra-swa/SDM1before%20-delete1/MyMean1\_z\_p\_0.00500\_1.000\_10.htm

H: Results of the studies after deletion of long duration of psychosis vs controls from

file:///D:/medicine/meta-analysis%20documents/2015-12-30/2016-2-25/2016-4-11/psychological%20medicine/ra-swa/SDM1before%20-delete2/MyMean1\_z\_p\_0.00500\_1.000\_10.htm

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