Table 1s. Clusters with significant difference in the DKI indices among the three groups.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DKI index | Anatomical location | MNI coordinates | | | Cluster size | Mean (standard deviation) | | | ANOVA | | Post-hoc Bonferroni tests | | |
| X | Y | Z | BD | MDD | Healthy volunteers | F | P | BD versus MDD | BD versus healthy volunteers | MDD versus healthy volunteers |
| MK | Gray matter of the right inferior parietal lobe | 46 | -39 | 49 | 55 | 0.736 (0.104) | 0.939 (0.101) | 0.828 (0.103) | 8.622 | <0.001 | <0.001 | 0.040 | 0.004 |
| MK | White matter of the right precentral gyrus | 22 | -21 | 55 | 119 | 1.012 (0.089) | 1.099 (0.086) | 0.909 (0.088) | 10.176 | <0.001 | 0.016 | 0.005 | <0.001 |
| MK | Left frontal periventricular white matter | -27 | -43 | 25 | 231 | 0.933 (0.142) | 0.881 (0.138) | 1.101 (0.141) | 9.271 | <0.001 | 0.840 | 0.004 | <0.001 |
| MK | White matter of the right frontal superior frontal gyrus | 23 | 49 | 13 | 76 | 0.868 (0.067) | 0.914 (0.065) | 0.992 (0.066) | 10.352 | <0.001 | 0.135 | <0.001 | 0.002 |
| MK | White matter of the right parietal lobe | 36 | -48 | 29 | 147 | 0.959 (0.076) | 0.994 (0.074) | 1.119 (0.075) | 10.668 | <0.001 | 0.517 | <0.001 | <0.001 |
| AK | Left side of midbrain | -11 | -17 | -18 | 88 | 0.656  (0.075) | 0.750 (0.073) | 0.821 (0.074) | 10.555 | <0.001 | 0.001 | <0.001 | 0.012 |
| AK | Left putamen | -25 | -2 | 8 | 334 | 0.751 (0.081) | 0.819 (0.078) | 0.927 (0.080) | 9.490 | <0.001 | 0.047 | <0.001 | <0.001 |
| AK | White matter of the right supramarginal gyrus | 36 | -42 | 44 | 80 | 0.756 (0.065) | 0.879 (0.063) | 0.796 (0.064) | 8.454 | <0.001 | <0.001 | 0.237 | <0.001 |
| AK | White matter of the right frontal superior frontal gyrus | 17 | -8 | 56 | 59 | 0.884 (0.067) | 0.891 (0.065) | 0.974 (0.066) | 6.645 | <0.001 | 1.000 | 0.001 | 0.001 |
| AK | White matter of bilateral cingulate gyri | 8 | -24 | 30 | 361 | 0.652 (0.105) | 0.598 (0.102) | 0.771 (0.104) | 7.283 | <0.001 | 0.400 | 0.006 | <0.001 |
| RK | White matter of the right precentral gyrus | 22 | -21 | 54 | 130 | 1.330 (0.174) | 1.489 (0.169) | 1.105 (0.172) | 11.494 | <0.001 | 0.027 | 0.001 | <0.001 |
| RK | Left parahippocampal gyrus | -17 | -12 | -17 | 75 | 0.827 (0.152) | 0.880 (0.147) | 1.101 (0.150) | 7.716 | <0.001 | 0.918 | < 0.001 | <0.001 |
| RK | Left supraventricular parietal white matter | -24 | -35 | 28 | 55 | 1.196 (0.312) | 1.041 (0.302) | 1.463 (0.308) | 7.762 | <0.001 | 0.442 | 0.047 | <0.001 |
| RK | White matter of the right precentral gyrus | 22 | -21 | 54 | 130 | 1.330 (0.174) | 1.489 (0.169) | 1.105 (0.172) | 11.494 | <0.001 | 0.027 | 0.001 | <0.001 |
| MD | Gray matter of the right precuneus | 8 | -51 | 64 | 65 | 1.666 (0.264) | 1.191 (0.256) | 1.511 (0.261) | 10.074 | <0.001 | <0.001 | 0.279 | 0.001 |
| MD | Gray matter of bilateral cunei | 8 | -81 | 30 | 283 | 1.434 (0.223) | 1.157 (0.217) | 1.486 (0.221) | 11.190 | <0.001 | 0.002 | 1.000 | <0.001 |
| MD | White matter of the left paracentral lobule | -8 | -38 | 67 | 91 | 1.460 (0.282) | 1.307 (0.273) | 1.751 (0.279) | 8.569 | <0.001 | 0.334 | 0.012 | <0.001 |
| MD | White matter of the left cingulate gyrus | -15 | -19 | 30 | 103 | 2.196 (0.627) | 2.388 (0.608) | 1.532 (0.621) | 5.733 | <0.001 | 1.000 | 0.010 | <0.001 |
| MD | White matter of the left orbital gyrus | -34 | 21 | -11 | 78 | 1.611 (0.293) | 1.544 (0.284) | 1.238 (0.290) | 6.395 | <0.001 | 1.000 | 0.002 | 0.005 |
| MD | White matter of the left middle temporal gyrus | -61 | -16 | -7 | 56 | 1.120 (0.137) | 1.161 (0.132) | 0.979 (0.135) | 5.759 | <0.001 | 1.000 | 0.012 | <0.001 |
| MD | White matter of the right cingulate gyrus | 13 | -22 | 30 | 60 | 1.998 (0.636) | 2.340 (0.616) | 1.490 (0.629) | 6.095 | <0.001 | 0.349 | 0.032 | <0.001 |
| MD | White matter of the right medial orbital frontal gyrus | 14 | 58 | -7 | 281 | 1.093 (0.080) | 1.082 (0.077) | 0.951 (0.079) | 19.777 | <0.001 | 1.000 | <0.001 | <0.001 |
| MD | White matter of the triangular part of the right inferior frontal gyrus | 52 | 13 | 24 | 81 | 1.175 (0.147) | 1.288 (0.142) | 1.040 (0.145) | 11.596 | <0.001 | 0.078 | 0.042 | <0.001 |
| MD | Right side of pons | 8 | -18 | -27 | 60 | 2.205 (0.475) | 2.098 (0.461) | 1.543 (0.470) | 7.368 | <0.001 | 1.000 | 0.001 | 0.002 |
| AD | White matter of the left cingulate gyrus | -10 | -16 | 30 | 67 | 3.037 (0.723) | 3.156 (0.701) | 2.227 (0.715) | 4.784 | <0.001 | 1.000 | 0.006 | <0.001 |
| AD | Gray matter of the left medial orbital frontal gyrus | -4 | 60 | -10 | 63 | 1.446 (0.190) | 1.350 (0.184) | 1.167 (0.188) | 11.258 | <0.001 | 0.412 | <0.001 | 0.011 |
| AD | White matter of the right medial frontal gyrus | 8 | 58 | -8 | 144 | 1.301 (0.106) | 1.306 (0.103) | 1.124 (0.105) | 17.472 | <0.001 | 1.000 | <0.001 | <0.001 |
| AD | Gray matter of the right precuneus | 6 | -52 | 64 | 54 | 1.808 (0.267) | 1.333 (0.259) | 1.654 (0.265) | 10.360 | <0.001 | < 0.001 | 0.294 | 0.001 |
| AD | Gray matter of bilateral cunei | 16 | -80 | 26 | 27 | 1.551 (0.209) | 1.305 (0.203) | 1.602 (0.207) | 11.163 | <0.001 | 0.003 | 1.000 | <0.001 |
| AD | White matter of the left precuneus | -10 | -40 | 70 | 113 | 1.563 (0.266) | 1.398 (0.258) | 1.832 (0.264) | 8.574 | <0.001 | 0.213 | 0.015 | <0.001 |
| AD | Left putamen | -24 | 4 | 0 | 77 | 1.033 (0.096) | 1.058 (0.093) | 1.164 (0.095) | 8.066 | <0.001 | 1.000 | 0.001 | 0.003 |
| AD | White matter of the right precentral gyrus | 30 | -22 | 70 | 78 | 1.488 (0.229) | 1.396 (0.222) | 1.752 (0.227) | 6.728 | <0.001 | 0.719 | 0.005 | <0.001 |
| RD | Gray matter of left cuneus | -3 | -82 | 30 | 75 | 1.564 (0.280) | 1.213 (0.272) | 1.567 (0.277) | 10.233 | <0.001 | 0.001 | 0.972 | <0.001 |
| RD | Gray matter of right precuneus | 8 | -51 | 64 | 65 | 1.603 (0.266) | 1.120 (0.258) | 1.443 (0.263) | 9.914 | <0.001 | < 0.001 | 0.086 | <0.001 |
| RD | Gray matter of right cuneus | 12 | -81 | 31 | 195 | 1.311 (0.235) | 1.042 (0.228) | 1.386 (0.233) | 9.878 | <0.001 | 0.001 | 0.358 | <0.001 |
| RD | Right Culmen | 15 | -53 | -12 | 87 | 1.479 (0.251) | 1.288 (0.243) | 1.594 (0.248) | 8.95 | <0.001 | 0.028 | 0.186 | <0.001 |
| RD | White matter of the left paracentral lobule | -8 | -38 | 67 | 85 | 1.419 (0.285) | 1.274 (0.276) | 1.718 (0.282) | 8.652 | <0.001 | 0.136 | 0.004 | <0.001 |
| RD | White matter of the left cingulate gyrus | -16 | -19 | 30 | 113 | 1.848 (0.591) | 2.070 (0.573) | 1.243 (0.585) | 6.223 | <0.001 | 0.270 | 0.004 | <0.002 |
| RD | White matter of the left orbital gyrus | -33 | 21 | -11 | 93 | 1.497 (0.284) | 1.431 (0.275) | 1.127 (0.281) | 6.580 | <0.001 | 0.493 | <0.001 | 0.001 |
| RD | White matter of the left middle temporal gyrus | -61 | -16 | -7 | 56 | 1.050 (0.144) | 1.097 (0.140) | 0.908 (0.143) | 5.546 | <0.001 | 0.337 | 0.006 | <0.001 |
| RD | Right side of midbrain | 10 | -14 | -19 | 74 | 1.654 (0.307) | 1.628 (0.297) | 1.194 (0.303) | 10.951 | <0.001 | 0.803 | <0.001 | <0.001 |
| RD | White matter of the right cingulate gyrus | 13 | -21 | 30 | 72 | 1.672 (0.608) | 2.000 (0.590) | 1.178 (0.602) | 6.245 | <0.001 | 0.116 | 0.022 | <0.001 |
| RD | White matter of the right superior frontal gyrus | 15 | 57 | -6 | 281 | 0.977 (0.078) | 0.959 (0.076) | 0.835 (0.077) | 18.81 | <0.001 | 0.482 | <0.001 | <0.001 |
| FA | Left hippocampus | -16 | -8 | -18 | 117 | 0.187 (0.039) | 0.197 (0.038) | 0.258 (0.039) | 10.808 | <0.001 | 0.470 | <0.001 | <0.001 |
| FA | Left supraventricular frontal white matter | -19 | -13 | 33 | 132 | 0.291 (0.060) | 0.259 (0.058) | 0.358 (0.059) | 8.904 | <0.001 | 0.115 | 0.002 | <0.001 |
| FA | Left frontal white matter | -32 | 20 | -14 | 74 | 0.132 (0.036) | 0.140 (0.035) | 0.179 (0.035) | 7.044 | <0.001 | 0.500 | <0.001 | 0.001 |
| FA | White matter of the left rectal gyrus | -6 | 40 | -22 | 63 | 0.123 (0.023) | 0.131 (0.022) | 0.161 (0.022) | 11.633 | <0.001 | 0.334 | <0.001 | <0.001 |
| FA | Right uncus | 11 | -11 | -25 | 1183 | 0.221 (0.030) | 0.229 (0.029) | 0.287 (0.030) | 17.835 | <0.001 | 0.447 | <0.001 | <0.001 |
| FA | White matter of the right superior frontal gyrus | 17 | 13 | 47 | 140 | 0.340 (0.032) | 0.359 (0.031) | 0.412 (0.032) | 14.51 | <0.001 | 0.094 | <0.001 | <0.001 |
| FA | Right frontal white matter | 24 | 33 | 8 | 51 | 0.266 (0 .032) | 0.285 (0.033) | 0.329 (0.032) | 13.373 | <0.001 | 0.094 | <0.001 | <0.001 |
| KFA | Left temporal white matter | -40 | -8 | -43 | 78 | 0.515 (0.073) | 0.545 (0.071) | 0.653 (0.072) | 8.982 | <0.001 | 0.651 | <0.001 | <0.001 |
| KFA | White matter of the right superior frontal gyrus | 21 | 9 | 45 | 507 | 0.533 (0.034) | 0.57 (0.033) | 0.641 (0.034) | 24.033 | <0.001 | 0.006 | <0.001 | <0.001 |
| KFA | White matter of the right cingulate gyrus | 13 | -22 | 31 | 397 | 0.517 (0.052) | 0.453 (0.051) | 0.563 (0.052) | 14.198 | <0.001 | <0.001 | 0.041 | <0.001 |
| KFA | Right inferior frontal operculum | 41 | 20 | 8 | 168 | 0.429 (0.064) | 0.369 (0.062) | 0.500 (0.064) | 11.558 | <0.001 | 0.022 | 0.008 | <0.001 |
| KFA | Left hippocampus | -15 | -10 | -17 | 176 | 0.472 (0.070) | 0.438 (0.068) | 0.561 (0.069) | 10.215 | <0.001 | 0.457 | 0.001 | <0.001 |
| KFA | Left insular white matter | -33 | 22 | -9 | 151 | 0.398 (0.080) | 0.416 (0.077) | 0.52 (0.079) | 7.513 | <0.001 | 1.000 | <0.001 | <0.001 |
| KFA | Left temporal white matter | -35 | 0 | -30 | 94 | 0.558 (0.059) | 0.613 (0.057) | 0.684 (0.059) | 10.969 | <0.001 | 0.025 | <0.001 | 0.001 |
| KFA | Right thalamus | 14 | -14 | 2 | 85 | 0.664 (0.045) | 0.671 (0.043) | 0.737 (0.044) | 8.432 | <0.001 | 1.000 | <0.001 | <0.001 |
| KFA | Right parahippocampal white matter | 28 | -7 | -31 | 82 | 0.513 (0.066) | 0.566 (0.064) | 0.667 (0.066) | 11.586 | <0.001 | 0.064 | <0.001 | <0.001 |
| KFA | White matter of the right orbital gyrus | 30 | 25 | -11 | 53 | 0.425 (0.078) | 0.437 (0.076) | 0.556 (0.077) | 11.613 | <0.001 | 1.000 | <0.001 | <0.001 |
| KFA | Right claustrum | 35 | -9 | 5 | 306 | 0.502 (0.062) | 0.521 (0.060) | 0.590 (0.061) | 9.562 | <0.001 | 1.000 | <0.001 | 0.003 |
| KFA | Gray matter of the right fusiform gyrus | 39 | -17 | -24 | 69 | 0.508 (0.061) | 0.485 (0.059) | 0.600 (0.060) | 10.362 | <0.001 | 0.840 | <0.001 | <0.001 |
| KFA | Right middle temporal gyrus | 57 | -3 | -28 | 53 | 0.412 (0.067) | 0.439 (0.065) | 0.53 (0.067) | 11.976 | <0.001 | 0.712 | <0.001 | <0.001 |
| KFA | Right side of the midbrain | 8 | -16 | -23 | 568 | 0.421 (0.084) | 0.429 (0.081) | 0.563 (0.083) | 11.666 | <0.001 | 1.000 | <0.001 | <0.001 |
| KFA | Right temporal white matter | 34 | -58 | 6 | 68 | 0.503 (0.068) | 0.467 (0.066) | 0.532 (0.067) | 7.846 | <0.001 | 0.355 | 0.659 | 0.011 |

Abbreviations: DKI= diffusion kurtosis imaging, BD= bipolar depression, MDD= major depressive disorder, MK= mean kurtosis, AK= axial kurtosis, RK= radial kurtosis, MD= mean diffusivity, AD= axial diffusivity, RD= radial diffusivity, FA= fractional anisotropy, KFA= kurtosis fractional anisotropy.