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Data supplement

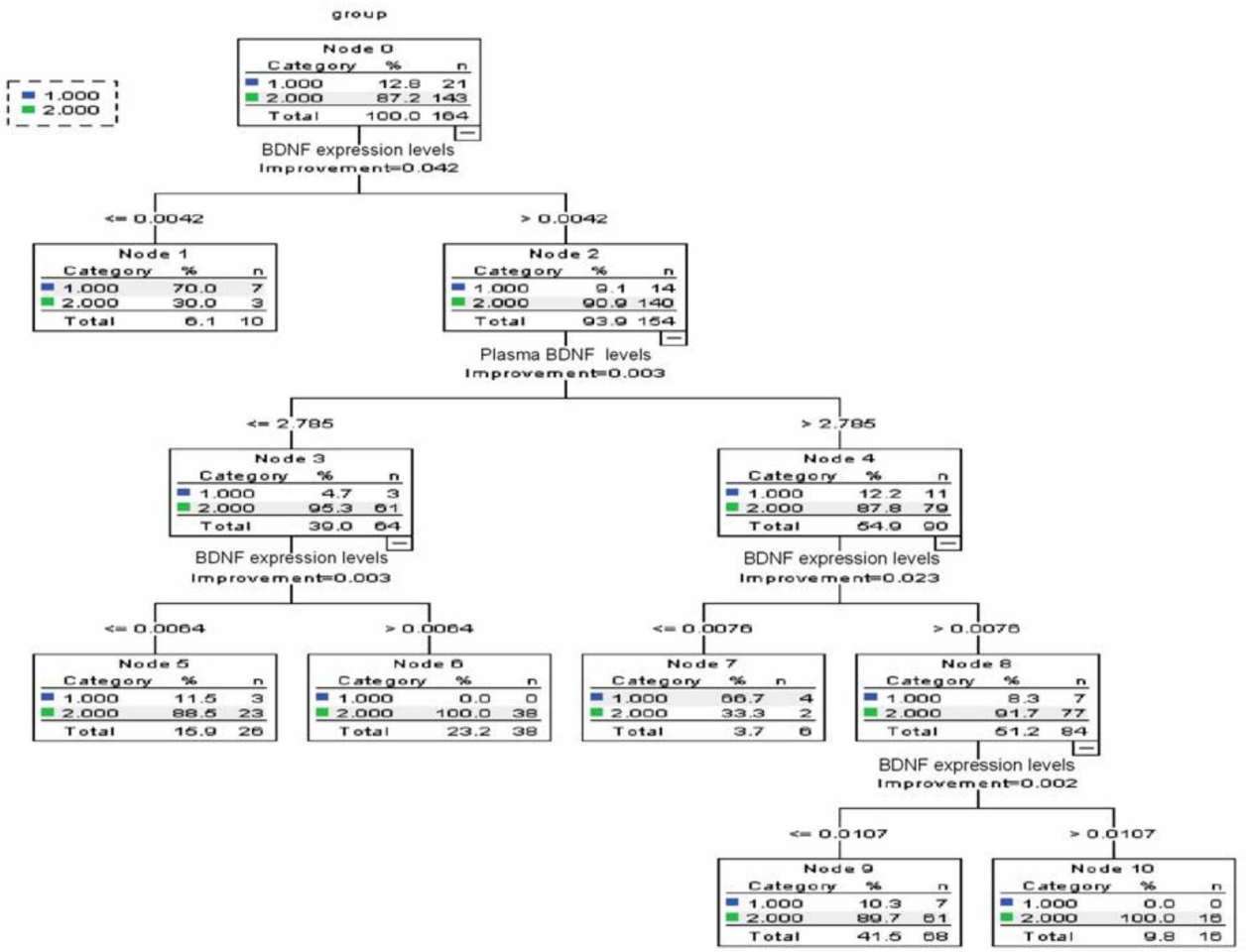

Fig. DS1 Decision tree.

A decision tree was developed with partitioning the results of a 1–2 (categorical) target variable. Under node 0, the brain-derived neurotrophic factor (BDNF) expression level further characterised the target variable: those whose BDNF levels were ⩽0.0042 were likely to have bipolar disorder (70% *v.* 30%) and those whose BDNF levels were >0.0042 were likely to have major depressive disorder (MDD) (9.1% *v.* 90.9%). Therefore if we stopped at this cut-point of this node level (node 1 and node 2), the true rate classified as bipolar disorder was 33.33% (7/21) and the true rate classified as MDD was 97.90% (140/143). Under node 2, those whose BDNF levels were >0.0042 and plasma BDNF levels ⩽2.785 were likely to have MDD (4.7% *v.* 95.3%) and those whose BDNF levels were >0.0042 and plasma BDNF >2.785 were also likely to have MDD (12.2% *v.* 87.8%). Using this rule, whatever the plasma BDNF values were, it was more probable to be categorised into the MDD group. Under node 3, those whose plasma BDNF levels were ⩽2.785 and BDNF levels were ⩽0.0064 were likely to have MDD (11.5 *v.* 88.5%); and those whose plasma BDNF levels were ⩽2.785 and BDNF levels were ⩽0.0064 were likely to have MDD (0.0% *v.* 100.0%). Therefore using this rule, there was a higher probability to be categorised into the MDD group when BDNF expression levels were >0.0064 compared with those whose levels were ⩽0.0064. Under node 4, those whose plasma BDNF levels were >2.785 and BDNF levels were =0.0078 were likely to have bipolar disorder (66.7 *v.* 33.3%); and those whose plasma BDNF levels were >2.785 and BDNF levels were >0.0078 were likely to have MDD (8.3% *v.* 91.7%). Thus, under this condition, the true rate classified as bipolar disorder was 36.36% (4/11), and the true rate classified as MDD was 97.47% (77/79). Under node 8, those whose BDNF expression levels were ⩽0.0107 and >0.0076 were likely to have MDD (10.3% *v.* 89.7%). Those whose BDNF levels were >0.0107 were likely to have MDD (0.0% *v.* 100.0%).Thus, if the BDNF levels were >0.0107, there was a higher probability to be categorised into the MDD group. Using these criteria, this model was successful in validating 52.4% of the bipolar disorder group and 96.5% of the MDD group. The corresponding receiver operating characteristic was equal to 0.84.