**Supplementary data:**

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| **Table ST1. Eq-CPZ/ARS effect on cognitive domains and severity in FEP patients** |
|  | **N** | **CPZ eq dose** | **ARS score** |
| **r values** | **p values** | **r values** | **p values** |
| 1. **Attention**
 | **241** | **-0.033** | **0.615** | **0.013** | **0.846** |
| 1. **Processing speed**
 | **261** | **-0.250** |  **0.001** | **-0.116** | **0.062** |
| 1. **Working memory**
 | **265** | **-0.190** | **0.002** | **-0.106** | **0.085** |
| 1. **Social cognition**
 | **252** | **-0.030** | **0.633** | **-0.021** | **0.742** |
| 1. **Verbal memory**
 | **260** | **-0.369** |  **0.001** | **-0.310** |  **0.001** |
| 1. **Executive function**
 | **240** | **-0.222** | **0.001** | **-0.151** | **0.017** |
| 1. **Global cognition**
 | **210** | **-0.325** |  **0.001** | **-0.215** | **0.002** |

**Table ST1: Antipsychotic dosage, ARS score and cognitive functioning. r: correlation. p values under 0.007 are statistically significant after Bonferroni correction.**

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| **Table ST2. Coefficient analyses of pharmacological variables** |
|  | **Eq-CPZ dose** | **ARS score** | **Premorbid IQ** |
| **Beta value** | **P value** | **Beta value** | **P value** | **Beta value** | **P value** |
| **Processing speed** | **-0.181** | **0.009** | **0.005** | **0.939** | **0.271** |  **0.001** |
| **Verbal memory** | **-0.181** | **0.005** | **-0.149** | **0.019** | **0.302** |  **0.001** |
| **Executive functions** | **-0.128** | **0.083** | **-0.055** | **0.442** | **0.222** | **0.002** |
| **Global cognition** | **-0.134** | **0.012** | **-0.064** | **0.213** | **0.514** |  **0.001** |

**Table ST2: Model summary of HMR coefficients analyses summarizing individual variable results of significant Step 4 results in the whole sample (related to pharmacological variables).**

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| **Table ST3. Cognition, AP dose and anticholinergic load** |
|  | **Low premorbid IQ (p0 to p50)** | **High premorbid IQ (p51 to p100)** | **Whole sample** |
| **Attention** | **R² change** | **0.015** | **0.031** | **0.003** |
| **F change** | **0.846** | **1.967** | **0.342** |
| **P values** | **0.432** | **0.145** | **0.711** |
| **Processing speed** | **R² change** | **0.022** | **0.087** | **0.028** |
| **F change** | **1.530** | **7.178** | **4.426** |
| **P values** | **0.221** | **0.001** | **0.013** |
| **Working memory** | **R² change** | **0.045** | **0.005** | **0.011** |
| **F change** | **3.814** | **0.358** | **2.039** |
| **P values** | **0.025** | **0.700** | **0.132** |
| **Social cognition** | **R² change** | **0.005** | **0.007** | **0.002** |
| **F change** | **0.321** | **0.478** | **0.292** |
| **P values** | **0.726** | **0.622** | **0.747** |
| **Verbal memory** | **R² change** | **0.087** | **0.045** | **0.074** |
| **F change** | **6.535** | **3.463** | **12.946** |
| **P values** | **0.002** | **0.035** |  **0.001** |
| **Executive functions** | **R² change** | **0.062** | **0.040** | **0.024** |
| **F change** | **3.788** | **2.631** | **3.202** |
| **P values** | **0.026** | **0.076** | **0.043** |
| **Global cognition** | **R² change** | **0.085** | **0.037** | **0.027** |
| **F change** | **7.967** | **2.870** | **7.199** |
| **P values** | **0.001** | **0.062** | **0.001** |

**Table ST3: Model summary of HMR group analyses evaluating cognition at 2-month follow-up in our naturalistic study of first episode patients with schizophrenia disorder. We divided our sample into two groups by premorbid IQ percentile (low and high premorbid IQ groups). Step 4 pharmacological variables (Eq-CPZ dose and ARS score) subgroup and group HMR results are depicted above.**