**Additional file 2**

**Table S1. All lottery situations in the gain trials**

|  |  |
| --- | --- |
| ***Risk*** | |
| Winning amount | Winning probability |
| \200 | 0.125 |
| \200 | 0.25 |
| \200 | 0.375 |
| \200 | 0.5 |
| \200 | 0.75 |
| \350 | 0.125 |
| \350 | 0.25 |
| \350 | 0.375 |
| \350 | 0.5 |
| \350 | 0.75 |
| \850 | 0.125 |
| \850 | 0.25 |
| \850 | 0.375 |
| \850 | 0.5 |
| \850 | 0.75 |
| \2200 | 0.125 |
| \2200 | 0.25 |
| \2200 | 0.375 |
| \2200 | 0.5 |
| \2200 | 0.75 |
| \5200 | 0.125 |
| \5200 | 0.25 |
| \5200 | 0.375 |
| \5200 | 0.5 |
| \5200 | 0.75 |

|  |  |
| --- | --- |
| ***Ambiguity*** | |
| Winning amount | Ambiguity level |
| \200 | 0.25 |
| \200 | 0.5 |
| \200 | 0.75 |
| \350 | 0.25 |
| \350 | 0.5 |
| \350 | 0.75 |
| \850 | 0.25 |
| \850 | 0.5 |
| \850 | 0.75 |
| \2200 | 0.25 |
| \2200 | 0.5 |
| \2200 | 0.75 |
| \5200 | 0.25 |
| \5200 | 0.5 |
| \5200 | 0.75 |

**Table S2. All lottery situations in the loss trials**

|  |  |
| --- | --- |
| ***Risk*** | |
| Losing amount | Losing probability |
| −\200 | 0.125 |
| −\200 | 0.25 |
| −\200 | 0.375 |
| −\200 | 0.5 |
| −\200 | 0.75 |
| −\250 | 0.125 |
| −\250 | 0.25 |
| −\250 | 0.375 |
| −\250 | 0.5 |
| −\250 | 0.75 |
| −\350 | 0.125 |
| −\350 | 0.25 |
| −\350 | 0.375 |
| −\350 | 0.5 |
| −\350 | 0.75 |
| −\850 | 0.125 |
| −\850 | 0.25 |
| −\850 | 0.375 |
| −\850 | 0.5 |
| −\850 | 0.75 |
| −\2200 | 0.125 |
| −\2200 | 0.25 |
| −\2200 | 0.375 |
| −\2200 | 0.5 |
| −\2200 | 0.75 |

|  |  |
| --- | --- |
| ***Ambiguity*** | |
| Losing amount | Ambiguity level |
| −\200 | 0.25 |
| −\200 | 0.5 |
| −\200 | 0.75 |
| −\250 | 0.25 |
| −\250 | 0.5 |
| −\250 | 0.75 |
| −\350 | 0.25 |
| −\350 | 0.5 |
| −\350 | 0.75 |
| −\850 | 0.25 |
| −\850 | 0.5 |
| −\850 | 0.75 |
| −\2200 | 0.25 |
| −\2200 | 0.5 |
| −\2200 | 0.75 |

**Table S3. Probability of choosing a lottery for a risk-neutral decision maker in the gain contexts**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Probability | Amount | | | | |
| \200 | \350 | \850 | \2200 | \5200 |
| 0.125 | 0 | 0 | 0 | 1 | 1 |
| 0.25 | 0 | 0 | 1 | 1 | 1 |
| 0.375 | 0 | 0 | 1 | 1 | 1 |
| 0.5 | 0 | 0 | 1 | 1 | 1 |
| 0.75 | 0 | 1 | 1 | 1 | 1 |

Across all choices, a risk-neutral decision maker would choose a lottery 60% of the time in gain contexts.

**Table S4. Probability of choosing a lottery for a risk-neutral decision maker in the loss contexts**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Probability | Amount | | | | |
| −\200 | −\250 | −\350 | −\850 | −\2200 |
| 0.125 | 1 | 1 | 1 | 1 | 0 |
| 0.25 | 1 | 1 | 1 | 0 | 0 |
| 0.375 | 1 | 1 | 1 | 0 | 0 |
| 0.5 | 1 | 1 | 1 | 0 | 0 |
| 0.75 | 1 | 1 | 0 | 0 | 0 |

Across all choices, a risk-neutral decision maker would choose a lottery 60% of the time in loss contexts.

**Table S5. Measures of decision quality**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Control Group |  | ASD Group |  | Statistics |
| (*N* = 26) | (*N* = 24) | *p* |
| Decision quality measure 1 (gain) | 0.01 (0.03) |  | 0.01 (0.02) |  | 0.94 |
| Decision quality measure 2 (gain) | 0.22 (0.11) |  | 0.18 (0.12) |  | 0.32 |
| Decision quality measure 1 (loss) | 0.03 (0.06) |  | 0.03 (0.06) |  | 0.54 |
| Decision quality measure 2 (loss) | 0.24 (0.12) |  | 0.23 (0.15) |  | 0.59 |

Standard deviations are given in parentheses

**Table S6. Reaction time (ms) in risk and ambiguity conditions**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Control Group |  | ASD Group |  | Statistics |
| (*N* = 26) | (*N* = 24) | *p* |
| Risk (gain) | 1163.6 (299.8) |  | 1144.5 (244.6) |  | 0.97 |
| Risk (loss) | 1272.2 (342.5) |  | 1339.8 (298.3) |  | 0.28 |
| Ambiguity (gain) | 1286.3 (342.1) |  | 1220.0 (325.3) |  | 0.50 |
| Ambiguity (loss) | 1346.7 (508.5) |  | 1407.8 (397.1) |  | 0.35 |

Standard deviations are given in parentheses

**Table S7. Results of additional analyses between ASD participants without psychotropic medication and controls**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Control |  | ASD |  | Statistics | | | | | | |
| (*N* = 26) | (*N* = 12) | *U* |  | *Z* |  | *p* |  | *r* (effect size) |
| Risk attitudes (gain) | 0.25 (0.17) |  | 0.34 (0.18) |  | 105.50 |  | −1.59 |  | 0.11 |  | −0.26 |
| Risk attitudes (loss) | −0.06 (0.12) |  | 0.04 (0.12) |  | 77.00 |  | −2.48 |  | 0.01 |  | −0.40 |
| Sensitivity to the context change (risk) | 0.32 (0.19) |  | 0.29 (0.19) |  | 146.00 |  | −0.31 |  | 0.75 |  | −0.05 |
| Ambiguity attitudes (gain) | 0.18 (0.18) |  | 0.06 (0.12) |  | 92.50 |  | −2.00 |  | 0.045 |  | −0.32 |
| Ambiguity attitudes (loss) | 0.01 (0.11) |  | 0.05 (0.09) |  | 130.50 |  | −0.80 |  | 0.42 |  | −0.13 |
| Sensitivity to the context change (ambiguity) | 0.16 (0.18) |  | 0.02 (0.09) |  | 75.00 |  | −2.55 |  | 0.01 |  | −0.41 |

Standard deviations are given in parentheses

**Table S8. Correlation coefficients between risk and ambiguity attitudes and the three factors of the Autism-Spectrum Quotient (AQ) among ASD participants**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Social skills | Details/patterns | Communication  /mindreading |
| Risk attitudes (gain) | −0.29 (0.17) | −0.12 (0.57) | −0.43 (0.03)\* |
| Risk attitudes (loss) | 0.15 (0.49) | −0.37 (0.07) | −0.33 (0.11) |
| Sensitivity to the context change (risk) | −0.44 (0.03)\* | 0.26 (0.21) | −0.12 (0.58) |
| Ambiguity attitudes (gain) | 0.04 (0.85) | 0.09 (0.67) | 0.30 (0.15) |
| Ambiguity attitudes (loss) | 0.37 (0.08) | −0.16 (0.46) | 0.06 (0.78) |
| Sensitivity to the context change (ambiguity) | −0.50 (0.01)\* | 0.40 (0.054) | 0.25 (0.23) |

The *p* values are given in parentheses; \**p* < 0.05; *N* (ASD) = 24