**Additional file 2.1 The associations between sex hormone and mental disorders by logistic regression in males and females.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Case** | **Control** | **Age±Sd** | ***b*** | ***P* value** | **OR** | **OR\_*P5*** | **OR\_*P95*** |
| **Bioavailable T \_ Ever smoking** | 219436 | 265380 | 56.53±8.09 | -0.0054 | 6.38×10-2 | 0.99 | 0.99 | 1.00 |
| **Bioavailable T \_ Ongoing behavioural or miscellanous addiction** | 1044 | 1117 | 52.18±7.73 | -0.0383 | 3.77×10-1 | 0.96 | 0.90 | 1.03 |
| **SHBG \_ Ever smoking** | 219436 | 265380 | 56.53±8.09 | 0.0084 | 4.27×10-3 | 1.01 | 1.00 | 1.01 |
| **SHBG \_ Ongoing behavioural or miscellanous addiction** | 1044 | 1117 | 52.18±7.73 | 0.0193 | 6.56×10-1 | 1.02 | 0.95 | 1.09 |
| **Total T \_ Ever smoking** | 219436 | 265380 | 56.53±8.09 | 0.0009 | 7.71×10-1 | 1.00 | 1.00 | 1.01 |
| **Total T \_ Ongoing behavioural or miscellanous addiction** | 1044 | 1117 | 52.18±7.73 | 0.0972 | 2.75×10-2 | 1.10 | 1.03 | 1.19 |

*Note*：Bioavailable testosterone (Bioavailable T); sex hormone-binding globulin (SHBG); Total testosterone (Total T).

**Additional file 2.2 The associations between sex hormone and mental disorders by linear regression in males and females.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Number** | **Women** | **Age±Sd** | ***b*** | ***P* value** |
| **Bioavailable T \_ Anxiety** | 151491 | 85339 | 55.90±7.74 | 0.0023 | 3.70×10-1 |
| **Bioavailable T \_ Depression** | 150792 | 84955 | 55.91±7.74 | 0.0036 | 1.52×10-1 |
| **Bioavailable T \_ Fluid intelligence** | 160121 | 86818 | 56.70±8.15 | -0.0044 | 6.68×10-2 |
| **Bioavailable T \_ Frequency of alcohol consumption** | 388571 | 199265 | 56.56±8.07 | -0.0004 | 7.76×10-1 |
| **Bioavailable T \_ Frequency of smoking** | 414294 | 228641 | 56.40±8.10 | 0.0015 | 3.32×10-1 |
| **SHBG \_ Anxiety** | 151491 | 85339 | 55.90±7.74 | -0.0028 | 2.68×10-1 |
| **SHBG \_ Depression** | 150792 | 84955 | 55.91±7.74 | -0.0001 | 9.69×10-1 |
| **SHBG \_ Fluid intelligence** | 160121 | 86818 | 56.70±8.15 | 0.0058 | 1.65×10-2 |
| **SHBG \_ Frequency of alcohol consumption** | 388571 | 199265 | 56.56±8.07 | 0.0101 | 3.84×10-11 |
| **SHBG \_ Frequency of smoking** | 414294 | 228641 | 56.40±8.10 | 0.0018 | 2.27×10-1 |
| **Total T \_ Anxiety** | 151491 | 85339 | 55.90±7.74 | -0.0018 | 4.95×10-1 |
| **Total T \_ Depression** | 150792 | 84955 | 55.91±7.74 | 0.0005 | 8.55×10-1 |
| **Total T \_ Fluid intelligence** | 160121 | 86818 | 56.70±8.15 | -0.0016 | 5.14×10-1 |
| **Total T \_ Frequency of alcohol consumption** | 388571 | 199265 | 56.56±8.07 | 0.0067 | 1.59×10-5 |
| **Total T \_ Frequency of smoking** | 414294 | 228641 | 56.40±8.10 | -0.0015 | 3.44×10-1 |

*Note*：Bioavailable testosterone (Bioavailable T); sex hormone-binding globulin (SHBG); Total testosterone (Total T).