***Supplementary Material***

**Psychosocial risk and protective factors for youth problem behavior are associated with Food Addiction in the Generation Z**

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1. **Supplementary Tables**

**Suppl. Table 1:** S-YFAS 2.0 (Yale Food Addiction Scale 2.0-short form); prevalence of individual symptoms, prevalence of food addiction diagnosis and mean symptom score in the entire sample and stratified by psychosocial risk factors.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Food addiction diagnosisa | Consumed more than planned a | Unable to cut down or stopa | Great deal of time spenta | Important activities given upa | Use despite physical/emotional consequences | Tolerancea | Withdrawala | Use despite interpersonal/social consequencesa | Failure in role obligationsa | Use in physically hazardous situationsa | Cravinga | Clinically significant impairment/ distressa | Mean symptom score (SD)b |
| Total (n = 8755) | 30.8% | 13.1% | 14.0% | 16.9% | 14.5% | 15.6% | 13.1% | 13.0% | 16.5% | 10.1% | 10.3% | 10.6% | 13.5% | 1.5 (2.4) |
| ***Sociodemographic domain*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gender |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Male (n = 4291) | 21.3%\*\* | 10.0%\*\* | 7.2%\*\* | 12.2%\*\* | 7.5% | 10.1%\*\* | 8.6%\*\* | 7.0%\*\* | 7.4%\*\* | 7.3%\*\* | 12.6%\*\* | 9.0%\*\* | 5.5%\*\* | 1.0 (1.9)\*\* |
| Female (n = 4187) | 40.0% | 15.9% | 20.7% | 21.3% | 21.0% | 20.5% | 17.0% | 18.7% | 13.4% | 12.8% | 20.0% | 11.5% | 21.3% | 1.9 (2.7) |
| Not Reported (n = 277) | 39.0% | 19.1% | 17.0% | 22.7% | 24.2% | 25.6% | 23.1% | 19.5% | 15.9% | 12.6% | 24.2% | 14.4% | 20.0% | 2.2 (3.0) |
| Age |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11-13 years (n = 3623) | 27.4%\*\* | 11.7%\*\* | 12.6%\* | 14.8%\*\* | 12.3%\*\* | 12.4%\*\* | 11.8%\* | 11.7%\* | 9.1%\*\* | 8.8%\* | 15.0%\* | 9.7% | 9.6%\*\* | 1.3 (2.2)\*\* |
| 14-17 years (n = 5132) | 33.2% | 14.1% | 14.9% | 18.4% | 16.0% | 17.8% | 14.0% | 14.0% | 11.6% | 11.0% | 17.5% | 10.8% | 16.3% | 1.6 (2.5) |
| Nationality |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Italian (n = 7535) | 29.7%\*\* | 12.8%\* | 13.7% | 16.1%\*\* | 13.7%\*\* | 15.2%\* | 12.4%\*\* | 12.6%\*\* | 10.3% | 9.4%\*\* | 16.0%\* | 9.7%\*\* | 13.1%\* | 1.4 (2.4)\*\* |
| Other nationality (n = 1220) | 37.5% | 15.0% | 15.7% | 21.9% | 19.0% | 18.0% | 17.0% | 15.9% | 12.0% | 14.3% | 19.4% | 14.4% | 15.7% | 1.8 (2.7) |
| SHDI |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ≤ 85th percentile(n = 2698) | 33.8%\*\* | 14.9%\* | 15.7%\* | 19.3%\*\* | 14.5% | 18.2%\*\* | 14.5%\* | 15.1%\*\* | 12.3%\* | 10.5% | 17.9%\* | 12.4%\*\* | 14.2% | 1.7 (2.5)\*\* |
| 90th percentile (n = 3958) | 30.3% | 12.3% | 12.8% | 16.0% | 15.0% | 14.6% | 12.3% | 12.7% | 10.0% | 10.4% | 16.3% | 9.4% | 13.5% | 1.4 (2.4) |
| 95th percentile (n = 2099) | 27.9% | 12.4% | 13.9% | 15.4% | 13.5% | 14.0% | 12.7% | 10.9% | 9.5% | 9.0% | 14.9% | 9.5% | 12.5% | 1.4 (2.4) |
| ***Family domain*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Talking to parents |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ease (n = 4648)  | 22.3%\*\* | 9.8%\*\* | 9.7%\*\* | 13.0%\*\* | 9.2%\*\* | 10.6%\*\* | 8.6%\*\* | 8.9%\*\* | 7.6%\*\* | 7.4%\*\* | 11.8%\*\* | 7.6%\*\* | 7.7%\*\* | 1.0 (2.0)\*\* |
| Difficulty (n = 4107) | 40.4% | 16.9% | 18.8% | 21.4% | 20.5% | 21.2% | 18.1% | 17.7% | 14.0% | 13.1% | 21.8% | 13.5% | 20.0% | 2.0 (2.7) |
| ***Personality domain*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Trait Impulsiveness |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Above median(n = 3469) | 43.5%\*\* | 19.7%\*\* | 19.9%\*\* | 24.1%\*\* | 20.7%\*\* | 23.4%\*\* | 19.7%\*\* | 19.1%\*\* | 16.0%\*\* | 15.7%\*\* | 23.1%\*\* | 16.2%\*\* | 19.4%\*\* | 2.2 (2.8)\*\* |
| Below median(n = 4139) | 18.4% | 6.8% | 8.2% | 9.9% | 8.4% | 8.1% | 6.7% | 7.1% | 5.3% | 4.7% | 10.1% | 4.7% | 7.8% | 0.8 (1.7) |
| Social anxiety disorder |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No (n = 3329) | 13.0%\*\* | 7.2%\*\* | 5.3%\*\* | 8.5%\*\* | 3.4%\*\* | 5.5%\*\* | 4.3%\*\* | 3.7%\*\* | 3.5%\*\* | 3.5%\*\* | 7.0%\*\* | 4.3%\*\* | 3.3%\*\* | 0.6 (1.3)\*\* |
| Yes (n = 5426) | 41.7% | 16.7% | 19.2% | 22.0% | 21.4% | 21.8% | 18.5% | 18.7% | 14.9% | 14.2% | 22.3% | 14.1% | 19.7% | 2.0 (2.7) |
| Depression Disorder |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No (n = 3655) | 11.1%\*\* | 5.6%\*\* | 4.4%\*\* | 7.2%\*\* | 2.7%\*\* | 4.6%\*\* | 3.7%\*\* | 3.7%\*\* | 3.3%\*\* | 3.1%\*\* | 6.8%\*\* | 4.0%\*\* | 2.2%\*\* | 0.5 (1.2)\*\* |
| Yes(n = 5100) | 44.9% | 18.5% | 20.8% | 23.8% | 22.9% | 23.6% | 19.8% | 19.7% | 15.8% | 15.1% | 23.4% | 14.9% | 21.5% | 2.2 (2.8) |
| Social withdrawal |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Not at risk(n = 8,582) | 29.9%\*\* | 12.7%\*\* | 13.4%\*\* | 16.2%\*\* | 13.8%\*\* | 15.0%\*\* | 12.4%\*\* | 12.6%\*\* | 10.1%\*\* | 9.7%\*\* | 16.0%\*\* | 9.9%\*\* | 12.7%\*\* | 1.4 (2.4)\*\* |
| At risk(n = 173) | 76.9% | 32.9% | 42.8% | 52.0% | 49.7% | 46.8% | 44.5% | 35.3% | 33.5% | 36.4% | 41.0% | 33.5% | 54.9% | 4.5 (3.5) |
| Last year academic performance |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Failed or lower than the class average (n = 965) | 41.6%\*\* | 19.5%\*\* | 18.1%\*\* | 25.6%\*\* | 21.1%\*\* | 21.2%\*\* | 19.2%\*\* | 18.9%\*\* | 15.1%\*\* | 17.7%\*\* | 22.9%\*\* | 17.0%\*\* | 19.2%\*\* | 2.2 (2.9)\*\* |
| On average or higher than the class average(n = 7191) | 28.8% | 12.1% | 13.2% | 15.6% | 13.6% | 14.5% | 12.0% | 12.1% | 9.8% | 9.0% | 15.6% | 9.2% | 12.8% | 1.4 (2.3) |
| Not remembered(n = 599)  | 36.7% | 15.0% | 15.9% | 18.5% | 14.9% | 19.0% | 16.5% | 14.5% | 11.9% | 11.7% | 16.7% | 13.9% | 12.0% | 1.7 (2.5) |
| ***Behavioral domain*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Social Media Addiction |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No(n = 8515) | 29.5%\*\* | 12.2%\*\* | 13.0%\*\* | 15.8%\*\* | 13.7%\*\* | 14.6%\*\* | 12.2%\*\* | 12.1%\*\* | 9.8%\*\* | 9.4%\*\* | 15.9%\*\* | 9.7%\*\* | 12.5%\*\* | 1.4 (2.3)\*\* |
| Yes(n = 240) | 74.6% | 45.0% | 46.7% | 54.6% | 41.7% | 50.0% | 45.0% | 46.3% | 36.7% | 34.2% | 37.5% | 32.1% | 47.5% | 4.7 (3.7) |
| Internet Gaming Disorder |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No (n = 7651) | 26.9%\*\* | 11.3%\*\* | 12.5%\*\* | 14.8%\*\* | 12.2%\*\* | 13.3%\*\* | 10.8%\*\* | 11.3%\*\* | 8.6%\*\* | 8.0%\*\* | 13.8%\*\* | 7.9%\*\* | 12.4%\*\* | 1.2 (2.2)\*\* |
| Yes(n = 1104) | 57.9% | 25.3% | 24.4% | 31.5% | 30.2% | 31.2% | 29.1% | 24.7% | 23.9% | 25.1% | 35.1% | 27.2% | 20.7% | 3.1 (3.1) |
| Doxxing performed |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No(n = 7036) | 28.0%\*\* | 11.2%\*\* | 12.7%\*\* | 14.7%\*\* | 13.0%\*\* | 13.8%\*\* | 11.7%\*\* | 11.8%\*\* | 9.0%\*\* | 8.7%\*\* | 15.1%\*\* | 9.0%\*\* | 12.5%\*\* | 1.3 (2.3)\*\* |
| Yes(n = 1719) | 42.3% | 20.7% | 19.2% | 25.7% | 20.5% | 23.0% | 18.7% | 17.9% | 16.9% | 15.8% | 22.1% | 15.9% | 17.4% | 2.2 (2.8) |
| Doxxing suffered |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No(n = 6435) | 26.2%\*\* | 11.1%\*\* | 11.8%\*\* | 14.5%\*\* | 11.6%\*\* | 13.0%\*\* | 10.7%\*\* | 10.9%\*\* | 8.7%\*\* | 8.2%\*\* | 13.4%\*\* | 8.4%\*\* | 10.9%\*\* | 1.2 (2.2)\*\* |
| Yes(n = 2320) | 43.4% | 18.6% | 19.9% | 23.4% | 22.5% | 22.8% | 19.6% | 18.9% | 15.8% | 15.4% | 25.0% | 15.8% | 20.8% | 2.2 (2.9) |
| Online Self-Harm Challenge engagement |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No (n = 8218) | 30.0%\*\* | 12.6%\*\* | 13.5%\*\* | 16.1%\*\* | 13.8%\*\* | 15.1%\*\* | 12.7%\*\* | 12.3%\*\* | 10.1%\*\* | 9.3%\*\* | 15.7%\*\* | 9.6%\*\* | 13.3%\* | 1.4 (2.4)\*\* |
| Yes(n = 537) | 47.3% | 21.4% | 21.6% | 28.5% | 24.4% | 23.6% | 19.4% | 23.5% | 18.4% | 22.7% | 28.5% | 22.3% | 16.8% | 2.5 (3.0) |
| Fruit and Vegetable Diet Habits |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Never(n = 443) | 43.1%\*\* | 22.1%\*\* | 17.4%\*\* | 25.7%\*\* | 20.8%\* | 22.8%\*\* | 17.6%\*\* | 20.3%\*\* | 18.3%\*\* | 17.6%\*\* | 21.2%\* | 18.5%\*\* | 17.2% | 2.4 (3.2)\*\* |
| Not every week(n = 1009) | 37.7% | 17.9% | 17.2% | 22.5% | 15.4% | 22.2% | 16.5% | 16.2% | 13.6% | 12.9% | 18.5% | 14.6% | 14.4% | 2.0 (3.0) |
| Weekly(n = 7303) | 29.1% | 11.9% | 13.3% | 15.6% | 14.0% | 14.2% | 12.3% | 12.1% | 15.9% | 9.3% | 9.3% | 9.7% | 13.1% | 1.5 (2.5) |
| Play competitive sport |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No(n = 5202) | 34.9%\*\* | 14.4%\*\* | 16.1%\*\* | 18.8%\*\* | 16.9%\*\* | 18.7%\*\* | 15.1%\*\* | 14.9%\*\* | 12.0%\*\* | 11.0%\* | 18.3%\*\* | 11.4%\*\* | 16.3%\*\* | 1.7 (2.6)\* |
| Yes(n = 3553) | 24.8% | 11.2% | 10.9% | 14.1% | 10.9% | 11.0% | 10.2% | 10.3% | 8.4% | 8.8% | 13.7% | 8.8% | 9.3% | 1.2 (2.1) |
| Volunteering |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No(n = 7205) | 31.4%\* | 13.2% | 14.3% | 17.6%\*\* | 14.7% | 15.8% | 13.3% | 13.5%\* | 11.2%\*\* | 10.2% | 16.5% | 10.5% | 13.8% | 1.5 (2.4)\* |
| Yes(n = 1550) | 28.0% | 12.6% | 12.5% | 13.5% | 13.4% | 14.5% | 11.9% | 10.6% | 7.6% | 9.9% | 16.3% | 9.7% | 12.1% | 1.3 (2.3) |
| Sleep duration |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 hours or less(n = 2671) | 41.5%\*\* | 18.1%\*\* | 19.7%\*\* | 23.6%\*\* | 21.7%\*\* | 22.5%\*\* | 18.3%\*\* | 18.5%\*\* | 21.8%\*\* | 14.3%\*\* | 13.7%\*\* | 14.5%\*\* | 20.9%\*\* | 2.3 (3.1)\*\* |
| 7-8 hours(n = 4739) | 26.5% | 10.7% | 11.7% | 13.8% | 11.6% | 13.0% | 11.0% | 10.9% | 14.1% | 8.1% | 8.6% | 8.8% | 11.1% | 1.3 (2.3) |
| 9-10 hours(n = 1024) | 22.9% | 10.8% | 10.3% | 13.6% | 9.1% | 10.3% | 9.1% | 8.8% | 13.3% | 8.1% | 7.9% | 8.6% | 7.4% | 1.2 (2.3) |
| More than 10 hours(n = 321) | 30.2% | 14.6% | 11.8% | 17.8% | 14.3% | 12.8% | 13.4% | 12.1% | 16.8% | 10.9% | 15.3% | 10.3% | 7.2% | 1.6 (2.6) |
| Sleep latency |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Less than 15 minutes(n = 3904) | 24.4%\*\* | 10.2%\*\* | 10.5%\*\* | 13.6%\*\* | 9.5%\*\* | 12.1%\*\* | 9.8%\*\* | 9.8%\*\* | 13.0%\*\* | 7.4%\*\* | 8.4%\*\* | 8.8%\*\* | 9.3%\*\* | 1.2 (2.3)\*\* |
| 15-45 minutes(n = 3841) | 33.8% | 14.5% | 15.7% | 18.1% | 16.6% | 17.4% | 14.4% | 11.3% | 17.8% | 11.2% | 11.0% | 11.3% | 14.5% | 1.8 (2.7) |
| More than 45 minutes(n = 1010) | 43.9% | 18.8% | 20.7% | 25.3% | 25.6% | 22.5% | 20.9% | 21.0% | 25.0% | 16.6% | 15.4% | 14.5% | 25.6% | 2.5 (3.3) |

a Pearson Chi square test. b Covariates with 2 modalities (Mann–Whitney U non-parametric test), covariates with 3 or more modalities (Kruskal-Wallis non-parametric test). SHDI= Subnational Human Development Index; \* p < 0.05; \*\*p <0.01.