**Suboptimal Health Status of High School Students in Guangzhou, Shanxi, and Tibet, China: A Cross-Sectional Study**

**Supplementary-2**

**S.Table 1. Indicators of SHS used in Questionnaire**

|  |  |  |
| --- | --- | --- |
| **Variable name** | **Meaning of the variable** | **Assignment value** |
| Y1 | Physical SHS | Yes=1，No=0 |
| Y2 | Psychological SHS | Yes=1，No=0 |
| X1 | Area | Shanxi=1 Tibet=2，Guangzhou=3 |
| X2 | Sex | Male=1，Female=0 |
| X3 | Nationality | Han Chinese=1，Tibetan =2，Other minorities =3 |
| X4 | BMI Index | Normal weight=1，Low wt=2，over wt=3，Obesity=4 |
| X5 | School | General high school=1，Key High School =2 |
| X6 | Grade | High one=1，High two=2，High three=3 |
| X7 | Home address | Rural=1，Township=2，County =3，Suburb=4，Urban=5 |
| X8 | Whether one child | Yes=1，No=0 |
| X9 | Family structure | Core family (parents)=1，Direct family (core family and elderly)=2，Disabled family (missing father or missing mother or lack of parents and no stepfather and other relatives)=3，Compound family (with other relatives)=4，Reorganized family (stepfather or stepmother)=5 |
| X10 | Father's education | Primary and below =1，Junior high school =2，High school or secondary school =3，Junior college=4，Bachelor and above =5 |
| X11 | Mother’s education level | Primary and below =1，Junior high school =2，High school or secondary school =3，Junior college=4，Bachelor and above =5 |
| X12 | Family economic level | Good（≥50,000）=1，Better（1~4.9 Million=2，Don’t know=3，Medium（5000~9999 Yuan）=4，Poor (1000~4999 Yuan）=5，Poor（<1000 Yuan）=6 |
| X13 | Whether children left behind | Yes=1，No=0 |
| X14 | Whether to stay | Yes=1，No=0 |
| X15 | Home visit frequency (/week) | 3days or more=1，0 days=2，1-2 days=3 |
| X16 | Time required to go to school | <10 min=1，10~29min=2，30~59min~=3，≥60min=4 |
| X17 | Sleep time（/day） | <6 hours=1，6-8 hour=2，>8 hour=3 |
| X18 | Parental expectation | Very high=1，high=2，general=3，POOR=4，lOW=5 |
| X19 | Learning burden | Very light =1，light=2，general=3，heavy=4，very heavy= 5 |
| X20 | Movement frequency (/week) | 3 times or more=1，No=2，1-2times=3 |
| X21 | Internet surfing time (/day) | 4 hours or more=1，No=2，1 hour=3，2-3 hours=4 |
| X22 | Smoking status (/month) | Yes (one or more cigarettes)=1，No=0 |
| X23 | Drinking status(/month) | Yes (drinking one day or more）=1，No=0 |
| X24 | Drunk situation (/month) | Yes (drink once and above)=1，No=0 |
| X25 | Breakfast | Eat every day=1，eat often=2，eat occasionally=3，never eat=4 |
| X26 | Eating habits | Prefer for meat =1，prefer vegetable=2，No partial eclipse =3 |
| X27 | Whether to ask for help | Yes=1，No=0 |
| X28 | Interpersonal communication | No=1，1-2个=2，3-5个=3，6 and above=4 |
| X29 | Character | inward=1，outward=0 |

Δ: According to the results of the questionnaire, the personality is only the result of introversion or extroversion. There is no neutral answer. Therefore, only the introversion and extroversion are assigned, and the personality neutral is not assigned.

**STable 2. Basic characteristics of study groups**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Group** | **Contents** | | **No. of Res** | **Proportion (%)** |
| **Area** | | Shanxi | 464 | 31.76 |
| Guangzhou | 491 | 33.61 |
| Tibet | 506 | 34.63 |
| **Grade** | | High-I | 521 | 35.67 |
| High-II | 536 | 36.68 |
| High -III | 404 | 27.65 |
| **Gender** | | Male | 636 | 43.53 |
| Female | 825 | 56.47 |
| **School** **Type** | | General High school | 778 | 53.25 |
| Key High school | 683 | 46.75 |

**S.Table 3. Distribution of Physical SHS and Psychological SHS in different regions**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Area** | **Number of respondents** | **Physical SHS** | |  | **Psychological SHS** | |
| **Symptom checked out** | **Status detected** |  | **Symptom checked out** | **Status detected** |
| Shanxi | 464 | 207(44.61) | 115(24.78) |  | 242(52.16) | 96(20.69) |
| Guangdong | 491 | 188(38.29) | 88(17.93) |  | 203(41.34) | 64(13.03) |
| Tibet | 506 | 199(39.33) | 106(20.95) |  | 229(45.26) | 95(18.77) |
| Chi test |  | 4.520 | 6.754 |  | 11.459 | 10.640 |
| *P* | 0.104 | **0.034** |  | **0.003** | **0.005** |
| Comparison | — | Shanxi，Guangdong，Tibet | Shanxib Guangdong,Tibet |  | Shanxib，Guangdonga，Tibet | Shanxib，Guangdonga， Tibetab |
|  |

*Note: a: is compared with Shanxi, and the difference is statistically significant; b: is compared with Guangdong, and the difference is statistically significant. Symptom checked-out to those participants whom were assumed to have either physical or psychological symptoms.*

**STable 4. The genders score of SHS symptoms**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Male** | |  | **Female** | | ***Z*** | ***P*** |
| *M* | *P*25～*P*75 |  | *M* | *P*25～*P*75 |
| **Physical SHS** | 38 | 33～47 |  | 42 | 35～52 | **-5.069** | **<0.001** |
| Lack of physical activity | 12 | 11～16 |  | 14 | 11～19 | **-5.973** | **<0.001** |
| Low physical activity | 13 | 11～16 |  | 14 | 11～18 | **-3.887** | **<0.001** |
| Resistance Decline | 12 | 10～15 |  | 12 | 10～16 | **-3.282** | **<0.001** |
| **Psychological SHS** | 49 | 40～66 |  | 53 | 43～76 | **-4.631** | **<0.001** |
| Emotional problems | 20 | 17～27 |  | 23 | 18～33 | **-5.928** | **<0.001** |
| Conduct Issues | 10 | 9～13 |  | 11 | 9～15 | **-5.178** | **<0.001** |
| Social adaption problems | 18 | 14～25 |  | 19 | 14～27 | **-2.383** | **0.017** |

**STable 5. A SHS detection rate by gender**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Gender** | **No. Res** | **Physical SHS** | |  | **Psychological SHS** | |  |
| **Symptom checked out** | **Status detected** |  | **Symptom checked-out** | **Status detected** |  |
| Male | 636 | 228(35.85) | 115(18.08) |  | 278(43.71) | 100(15.72) |  |
| Female | 825 | 366(44.36) | 194(23.52) |  | 396(48.00) | 155(18.79) |  |
| Test |  | 10.792 | 6.358 |  | 2.659 | 2.341 |  |
| *P* | **<0.001** | **0.012** |  | 0.103 | 0.126 |  |

**Table 3. A multi-factor unconditional logistic regression model of associated factors of physical SHS**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Number (%)** | **OR** | ***AOR*** | ***95% CI*** | | **P-value** |
| **Lower** | **Upper** |
| **Area** |  |  |  |  |  |  |
| Guangzhou | 491(33.61) | - | - | - | - | 0.003 |
| Shanxi | 464(31.76) | 1.846 | 1.627 | 1.154 | 2.294 | **0.005** |
| Tibet | 506(34.63) | 1.095 | 0.928 | 0.638 | 1.348 | 0.693 |
| **Sleep time** |  |  |  |  |  |  |
| **<**6 hours | 158(10.81) |  | - | - | - | 0.004 |
| 6-8 hours | 1234(84.46) | 4.377 | 4.299 | 1.539 | 12.004 | **0.005** |
| >8 hours | 69(4.72) | 2.554 | 2.466 | 0.941 | 6.461 | 0.066 |
| **Learning burden** |  |  |  |  |  |  |
| very light | 307(21.01) | - | - | - | - | 0.002 |
| light | 556(38.06) | 0.856 | 0.769 | 0.160 | 3.689 | 0.743 |
| general | 536(36.69) | 2.301 | 1.989 | 0.879 | 4.501 | 0.099 |
| heavy | 40(2.74) | 2.130 | 2.214 | 1.490 | 3.289 | **<0.001** |
| Very heavy | 22(1.51) | 1.470 | 1.424 | 1.017 | 1.995 | **0.040** |
| **Home visit/week** |  |  |  |  |  |  |
| No | 329(22.52) | — | — | — | — | **<0.001** |
| 3-times or more | 575(39.36) | 2.455 | 3.049 | 2.129 | 4.364 | **<0.001** |
| 2-times | 557(38.12) | 1.159 | 1.306 | 0.928 | 1.839 | 0.126 |
| **Internet surfing time/day** |  |  |  |  |  |  |
| 4 or more hours | 275(18.92) |  | — | — | — | 0.002 |
| No | 640(43.81) | 1.322 | 1.145 | 0.724 | 1.809 | 0.563 |
| 1 hours | 365(24.98) | 0.440 | 0.457 | 0.288 | 0.727 | **<0.001** |
| 2-4 hours | 181(12.39) | 0.783 | 0.761 | 0.540 | 1.070 | 0.116 |
| **Drinking** | 246(16.83) | 1.970 | 1.815 | 1.284 | 2.566 | **<0.001** |
| **Diet** |  |  |  |  |  |  |
| No special | 343(22.11) | — | — | — | — | 0.028 |
| Prefer meat | 323(22.11) | 1.575 | 1.553 | 1.114 | 2.167 | **0.010** |
| Prefer vegetables | 795(54.41) | 1.232 | 1.298 | 0.910 | 1.852 | 0.150 |