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

**Supplementary -1**

**Appendix 1**

**Youth Sub-Health Status Questionnaire**

Questionnaire number: \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_

Youth Sub-Health Status Questionnaire

Dear classmate,

Hello!

As a student at school, you are faced with heavy learning tasks on the one hand and healthy growth conditions on the other. Our research is dedicated to improving the overall health of students. The results of future research are generalized, not personal, and are anonymous. I hope that you can fill in the truth according to your own situation. Your cooperation will help to formulate relevant policies for the development of adolescents' health quality in China.

Sincerely thank you for your cooperation!

Sun Yat-Sen University School of Public Health

**Adolescent Health Survey Team**

Completion Instructions:

1. The content of the questionnaire helps you to understand your health status. Please read each question in the questionnaire carefully and fill in or mark a “√” in the corresponding answer area according to your actual situation. If there is no description, "multiple choices", there is only one answer.

2, the answer to all questions is a subjective judgment, there is no "right", "wrong", "yes" and "not" points, but also has nothing to do with the results, students do not have to discuss. We pledge that all data and personal data will be kept strictly confidential and will only be used for the overall analysis of the data.

3. If you find that you filled out the error, you can use a slash to cross the original answer and then re-tick the final answer.

First, the basic situation:

1, □ student number / □ mobile phone / □ QQ number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2, gender: 1 male 2 female

3. Age: \_\_\_\_\_\_\_\_ years old 4. Nationality: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

5, height: \_\_\_\_\_\_\_\_ cm (cm) 6, weight: \_\_\_\_\_\_\_\_ kg (kg)

7. Studying at school: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 8. Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Family location: 1 rural area; 2 townships; 3 county town; 4 suburb; 5 urban area

10. Are you an only child: 1 Yes; 2 No

11. The family members currently living with you have (multiple choices): 1 father; 2 mother; 3 stepfather; 4 stepmother; 5 adoptive father; 6 foster mother 7 grandfather, grandmother or grandfather, grandmother 8 brothers and sisters; 9 other relatives (such as uncle, aunt, etc.)

12. The education level of your current father (or stepfather, adoptive father): (Select 8, please skip to 14 questions) 1 Elementary school has not graduated or has not attended school; 2 graduated from elementary school; 3 high school; 4 high school or technical secondary school; 5 junior college; 6 undergraduate; 7 graduate students and above; 8 no father

13. Does your current father (including adoptive father and stepfather) go out to work in another city?

1 Father has been working in the region; 2 Father is now working in another city, already \_\_\_\_\_\_\_\_ years; 3 My father was at home recently, but in the past he went out to work in another city and went out to work for about \_\_\_\_\_\_\_\_ years;

14. The educational level of your current mother (or foster mother, stepmother): (Select 8, please skip to 16 questions) 1 Elementary school has not graduated or has not attended school; 2 graduated from elementary school; 3 high school; 4 high school or technical secondary school; 5 junior college; 6 undergraduates; 7 graduate students and above; 8 no mother

15. Does your current mother (including foster mother and stepmother) go out to work in another city?

1 The mother has been working in the area; 2 the mother is now working in another city for \_\_\_\_\_\_\_\_ years; 3 The mother was at home recently, but in the past she went out to work in another city and went out to work for about \_\_\_\_\_\_\_\_ years;

16. Annual per capita income of the family (per capita annual income = family annual income / family population): 150,000 yuan and above; 2 1~49,000 yuan; 3 5000~9999 yuan; 4 1000~4999 yuan; 5 <1000 yuan; 6 not clear Second, the general living conditions

17. During the semester, are you a student? 1 Yes; 2 No (If yes, fill in 18 questions; if no, fill in questions 19 and 20)

18. The number of days you go home one week is: 10 days; 21 days; 32 days; 43 days; 54 days; 65 days; 76 days; 87 days

19. The way you go to school is: 1 walking; 2 cycling; 3 by public transport; 4 private cars; 5 other: \_\_\_\_\_\_\_\_

20. Your time for schooling is: 1 within 10 minutes; 2 10 to 29 minutes; 3 30 to 59 minutes; 4 to 60 minutes and above;

21. In the past month, the time to go to bed at night is usually \_\_\_\_\_\_\_\_\_\_\_\_ o'clock.

22. In the past month, the usual time to get up in the morning is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ o'clock.

23. In the past month, the average night's sleep was \_\_\_\_\_\_\_\_\_\_\_\_\_\_ hours (not equal to bedtime).

24. What do you think parents (or family members) expect from themselves: 1 is very high; 2 is high; 3 is average; 4 is low; 5 is very low

25, you think your learning burden: 1 very heavy; 2 heavy; 3 general; 4 light; 5 very light

26. In the past month, how often do you spend your homework outside the classroom on average each day? 1 never or rarely; 2 less than 1 hour; 3 1 hour per day; 4 2 hours per day; 5 3 hours per day; 6 4 hours per day; 7 5 hours and above

27. In the past month, when did you participate in off-campus tutoring (referring to various remedial classes)?1 never or very little; 2 1 to 2 hours; 3 3 to 4 hours; 4 5 to 6 hours; 5 7 to 8 hours; 6 8 hours or more

28. In the past month, have you participated in an average of several exercises per week (at least 20 minutes each time)? (not including physical education) 1 no; 2 1 time; 3 2 times; 4 3 times; 5 4 times; 6 5 times or more

29. How long have you been surfing the Internet every day in the past month? 1 no internet access; 2 less than 1 hour; 3 1 hour; 4 2 hours; 5 3 hours; 6 4 hours and above

30. How many days have you smoked in the past month? (If you choose 1, please skip to question 33)

1 no smoking; 2 1-2 days; 3 3-5 days; 4 6-9 days; 5 10-19 days; 6 20-29 days; 7 30 days

31. In the past month, how many cigarettes do you usually smoke every day during your smoking? 1 no smoking; 2 less than 1; 3 1-5 per day; 4 6-10 per day; 5 11-20 per day; 6 more than 20 per day

33. In the past month, how many days have you had at least one glass of wine? (Select 1, please skip to 35 questions) 1 No drinking; 2 1-2 days; 3 3-5 days; 4 6-9 days; 5 10-19 days; 6 20-29 days; 7 30 days

34. In the past month, have you spit up because of drinking 1 No drinking; 2 Drinking, no spit; 3 Drinking spit 1, 2 times; 4 Drinking and spitting more than 3 times

35. Is the customary rule of your breakfast? 1 Eat every day; 2 Eat regularly (more than 15 days per month); 3 Eat occasionally (less than 15 days per month); 4 Never eat

36. your eating habits: 1 prefers meat; 2 prefers vegetables; 3 does not favor partial eclipse

37. When you are in a difficult situation, would you ask for help from those people? (Multiple choice):

1 father; 2 mother; 3 other relatives; 4 classmates; 5 teachers; 6 others: \_\_\_\_\_\_\_\_; 7 will not seek help

38. How many close friends do you have to get support and help? 1 No one; 2 1~2; 3 3~5; 4 6 and above

39. In general, you think your character is: 1 very introverted; 2 introverted; 3 neutral; 4 outward; 5 very outward

40. Do you have any organic disease (organ, visceral lesions) or neuropsychiatric diseases (required by doctor): 1 Yes, the doctor said it is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ disease (please fill in the name of the disease); 2 no

Third, please read each question carefully, according to the true feelings of the last 3 months, draw the "√" on the option that best suits you.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Your feelings | How long have you been feeling for the last 3 months? | | | | | |
| 41.1.I feel acid and distend in eyes almost all day. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.2. I often have a cold repeatedly. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.3.I always feel that the food is tasteless. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.4.My [angelus](C:/Users/Calin/AppData/Local/youdao/dict/Application/8.4.0.0/resultui/html/index.html#/javascript:;) [oris](C:/Users/Calin/AppData/Local/youdao/dict/Application/8.4.0.0/resultui/html/index.html" \l "/javascript:;) ulcerates repeatedly. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.5.I feel sick almost every day. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.6.I often have a nasal obstruction . | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.7.My eyes are xerotic almost every day. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.8.My throat is often sore and swollen. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.9.I drink and eat more. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.10.My gingiva (tooth flesh) are often swollen and painful. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.11.I often feel dyspnoea and chest discomfort. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.12.I have [oral ulcer](http://dict.cnki.net/dict_result.aspx?searchword=%e5%8f%a3%e8%85%94%e6%ba%83%e7%96%a1&tjType=sentence&style=&t=oral+ulcer) repeatedly.(Oral mucosa defect, ulceratione.) | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.13.I have acid regurgitation (spitting acid saliva) almost every day. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.14My gingiva (tooth flesh) often bleeds. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.15.I have stomach bloating almost every day. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.16.I often have a headache. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.17.I always don't want to eat. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.18.I look pale. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.19.I have recurring unexplained diarrhoea. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.20.I often feel that my limbs are numbness. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.21.I have a stomach-ache all the time. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.22. My throat tickles almost all day long. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.23.I sweat at night almost every day. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.24.I feel dizzy all the time. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.25.It's hard to fall asleep for me almost every day. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.26.My muscle aches after slight activity | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.27.I don't sleep well almost every day. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.28.I feel tired all the time. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.29.I often wake-up too early in the morning. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.30. My limbs are often fatigue. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.31.I have significantly weight gain. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 41.32.I get palpitation after a little activity. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.1.I have no interests in anything. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.2.It is always hard to remember the learning content these days. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.3. I often feel antsy and restless. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.4.I often feel that people are unfriendly and dislike me. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.5.I often feel nervous. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.6.I always feel that other people know my private thoughts. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.7.I often blame myself. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.8.I often feel that someone is watching at me and talking about me. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.9.I’m always afraid of empty places. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.10.It is difficult to study at home. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.11.I’m often indecisive. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.12.There is always a sense that most people can’t be trusted. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.13.I’m often fear of going to public events or participating in group activities. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.14.I often feel uncomfortable with my school life. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.15.I often feel restless in my heart. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.16.I’m always reluctant to confide in others when I’m depressed. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.17.I often feel scared for no reason. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.18.I always feel hopeless about the future. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.19.I can’t concentrate my attention. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.20. It is always difficult for me to adapt to the teacher's teaching methods. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.21.I often feeling depressed. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.22.There is often an impulsion to throw something in my mind. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.23.There are always unnecessary thoughts or words swirling in my mind. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.24.I don't want to ask for help when I am in trouble. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.25.I always worry about my teacher asking me questions in class. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.26.I always don’t like to discuss questions with classmates and friends. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.27.I think of death frequently. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.28.I can’t lift my spirits all day long. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.29.I often think about how to commit suicide (such as how to take poison, cut my wrists, jump off a building, etc.) | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.30.I often arguee with others. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.31.I feel uncomfortable in a crowded place. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.32.I always feel that other people are working against me. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.33.Being alone always makes me nervous. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.34.I always hate school | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.35.I often feel worried when I lost my temper uncontrollably. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.36.I'm always on the edge when I hear of an exam. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.37.I often become angry because of petty things. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.38.I often find it difficult to study compared with my classmates, | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |
| 42.39.I often feel uncomfortable when people look at me. | Never or less than a week | more than one week | more than two weeks | more than one month | more than two months | more than three months |

The questionnaire is over and I would like to express my heartfelt thanks to you for your support and help!

**Appendix 2**

**Introduction to the study locations**

**1. Shanxi Yuci**

Yuci is located in the Jinzhong Basin in the central part of Shanxi Province, surrounded by the Taihang Mountain in the west, the border of Shouyang County in the east, the Qingxu in the west, the Taigu County in the south, and the Taiyuan City in the northwest. The area covers of ​​1,328 square kilometers, having 6 towns and 4 townships, 272 administrative villages; 9 street offices and 61 communities. Known as the “Taiyuan South Gate” and “provincial city gateway”, it is an important hub for transportation in Shanxi Province. Yuci is the seat of the Jinzhong Municipal Party Committee and the Municipal Government and is the political, economic and cultural center of Jinzhong City. The population of Shanxi is 550,000, of which the urban population is 290,000 and the rural population is 260,000. The ethnic group is dominated by the Han people.

There are 125 primary and secondary schools in the district. 29 middle schools: 3 of them are high school, 6 high schools (one middle, two middle schools, three middle schools, four middle schools, Jinhua middle school, Jingwei middle school), single. There are 20 high schools (5 cities: 5 middle schools, 6 middle schools, 8 middle schools, 9 middle schools, 10 middle schools; 15 rural areas); 95 primary schools: 21 cities, 74 rural areas; and 1 special education school. There are 9,384 high school students in the district.

**2. Tibet Linzhi**

Linzhi is located in the south-eastern part of the Tibet Autonomous Region of China. It is adjacent to the cities of Chengdu, Naqu, Lhasa, and Shannan, which is connected to Yunnan and Chengdu in the east and northeast and borders India and Myanmar in the outer border. The borderline is 1006.5 km long. The Linzhi area has jurisdiction over 7 counties of Linzhi, Milin, Gongbu Jiangda, Medog, Bomi, Chayu and Lang County. Linzhi has an average elevation of 3,100 meters and a total area of 116,175 square km. The Linzhi area has a total population of 195,000. It is home to more than 10 ethnic groups including Tibetan, Han, Hui, Nu, Menba, Yuba, Dulong and Naxi, and monks who have not yet established their national identity. Except for Medog County, the residents of the other 6 counties are mainly Tibetans. The Tibetan population accounts for more than 90% of the total population of the region. Their living habits and religious beliefs retain a strong traditional believes and a unique ethnic style.

The Linzhi area has three major resources, one is huge forestry, the second is rich in water resources, and the third is colorful tourism resources. Focusing on agriculture and animal husbandry, it engages in the basic construction of farmland water conservancy and comprehensive agricultural development, implements measures to promote agriculture through science and technology and adjust and optimize the economic structure of agricultural and pastoral areas, thus achieving a bumper harvest in agriculture. Under the poverty alleviation of Guangdong and Fujian provinces, the economy of Linzhi region has developed rapidly, and the regional GDP has maintained a growth rate of more than 15% for 10 consecutive years.

There are 276 schools of all types and at all levels, including 2 high schools, 1 secondary vocational and technical school, 9 junior high schools, 54 full primary schools, 13 junior primary schools, and 2,377 middle school students. compulsory education.

**3. Guangzhou, Guangdong**

Guangzhou is located in the south of China, in the south-central part of Guangdong Province, on the northern edge of the Pearl River Delta, close to the estuary of the lower reaches of the Pearl River Basin. The range is from 112 degrees 57 minutes to 114 degrees 3 minutes east longitude, 22 degrees 26 minutes to 23 degrees 56 minutes north latitude. It is adjacent to Boluo and Longmen counties in Huizhou City, Sanshui, Nanhai and Shunde Districts in Foshan City in the west, Xinfeng County in Fogang County and Shaoguan City in the north, and Dongguan City and Zhongshan City in the south. It faces the Hong Kong and Macao Special Administrative Regions across the sea. The city covers an area of 7434.4 square Kms. There are 10 administrative districts and 2 county-level cities. The urban area is 3843.43 square kilometers. The two county-level cities cover an area of 3590.97 square kilometers. It is the provincial capital of Guangdong Province, a sub-provincial city, and the province's politics and technology city as well. This is the large cultural city center of the People's Republic of China, which is the third largest city in China, and one of the five national central cities. The city's permanent resident population is 12.7095 million, and the urban resident population is 11.0781 million. The ethnic group is dominated by the Han nationality, and the ethnic groups with a large number of people are mainly Zhuang, Hui, Tujia, Miao, Yao, and Yi.

In 2011, there were 961 primary schools and 472 middle schools in Guangzhou, including 347 junior high schools and 125 high-level schools. 148,472 primary school students, 819,771 primary school students, school-age children enrolment rate of 100%, primary school graduation rate of 98.78%, primary school graduates enrolment rate of 99.31%; enrolment of junior high school students 129,128, 383,245 junior high school students, junior high school graduates 87.93%; recruiting 59,187 high school students, 178,373 students in ordinary high schools, including 72,742 students in the model high school, accounting for 40.78% of the total number of students in the city's ordinary high schools.

**Evaluation indicators**

This study evaluated SHS from two perspectives. The degree of SHS of adolescents which were evaluated by the level of the physical SHS and psychological SHS. The score is 1 to 6 points. The higher score of the grade indicates the more serious SHS. MSQA questionnaire scale was used to estimate the SHS. This questionnaire consists of 71 sub-health symptoms which are investigating items. A symptom persisted for more than one month, which means that the student has sub-health symptoms. Among the 32 items in the sub-health area, one or more of the symptoms persisted for more than one month, which means that physical sub-health symptoms exist. If the above symptoms persisted for more than one month, it is considered that there are symptoms of physical and psychological SHS. The 90th percentile (P90) of the national sub-health symptom items for young students in the country is used as a reference for the judgment of the SHS. The number of the symptoms with a duration of more than one month, there are 32 sub-health symptom items. If more than or equal to 3 items symptoms are appeared then the sub-health status exist, and 39 psychological sub-health symptom items are there. The number of symptom items with a duration of more than one month is greater than or equal to 8 items, which is a psychological sub-health status. And the total number of symptoms items is greater than or equal to 11 items are for the physical and psychological health status.