

Supplement Table 1. The comparisons between 94 subjects with prior mental health diagnosis and other subjects without prior mental health diagnosis

	Overall (N=4302)	Non-prior mental health diagnosis (N=4208)	Prior mental health diagnosis (N=94)	<i>t</i> / χ^2	<i>p</i> -Value
Demographic characteristics					
Age, Mean (SD)	18.59 (0.95)	18.59 (0.95)	18.64 (0.94)	-0.48	0.628
Sex				9.67	0.002
Male, N (%)	1914 (44.50)	1887 (44.84)	27 (28.70)		
Female, N (%)	2388 (55.50)	2321 (55.16)	67 (71.30)		
Ethnicity				0.41	0.359
Han ^a , N (%)	4148 (96.40)	4059 (96.53)	89 (94.70)		
Birthplaces				21.77	< 0.001
Urban, N (%)	1256 (29.20)	1209 (28.73)	47 (50.00)		
Town, N (%)	1042 (24.20)	1021 (24.26)	21 (22.30)		
Rural, N (%)	2004 (46.60)	1978 (47.01)	26 (27.70)		
Parental marital status				10.45	0.015
Married, N (%)	3875 (90.10)	3799 (90.28)	76 (80.90)		
Not currently married ^b , N (%)	427 (9.90)	409 (9.72)	18 (19.10)		
Left-behind child status^c (yes), N (%)	1423 (33.08)	1384 (32.89)	39 (41.50)	3.07	0.080
Family history of mental disorders (yes), N (%)	178 (4.10)	154 (3.66)	24 (25.50)	105.45	< 0.001
Chronic physical illness^d (yes), N (%)	448 (10.40)	429 (10.19)	19 (20.20)	9.89	0.002
Lifestyle factors					

Smoking, N (%)	118 (2.70)	106 (2.52)	12 (12.80)	32.45	< 0.001
Alcohol intake, N (%)	179 (4.20)	169 (4.02)	10 (10.60)	10.11	0.001
Lack of exercise, N (%)	2520 (58.60)	2457 (58.39)	63 (67.00)	2.82	0.930
Psychosocial factors					
Childhood traumas ^c , Mean (SD)	43.99 (9.50)	43.74 (9.14)	53.37(16.01)	-11.64	< 0.001
Recent adverse life events ^f , Mean (SD)	40.09 (12.55)	39.82 (12.35)	52.29 (15.35)	-9.63	< 0.001
Resilience ^g , Mean (SD)	95.19 (14.05)	95.45 (13.93)	83.56 (14.39)	8.18	< 0.001
Social support ^h , Mean (SD)	64.67 (13.54)	64.84 (13.47)	56.68 (14.22)	5.80	< 0.001
Affective symptoms					
Depressive symptoms ⁱ , N (%)	2144 (49.80)	2060 (48.95)	84 (89.36)	60.05	< 0.001
Anxiety symptoms ^j , N (%) ^j	1897 (44.10)	1815 (43.13)	82 (87.23)	72.55	< 0.001
Self-reported sleep problems					
Difficulty falling asleep, N (%)	1790 (59.83)	1728 (41.06)	62 (70.21)	42.23	< 0.001
Waking up easily at night, N (%)	1098 (25.52)	1056 (25.10)	42 (44.70)	26.47	< 0.001
Early waking, N (%)	1063 (37.05)	1559 (37.05)	44 (46.80)	11.34	0.023

^a Han is the major ethnic group in China.

^b Not currently married included separated, divorced and widowed.

^c Referring to those left behind in their hometown by one or both of their migrant worker parents.

^d Referring to those have at least one of arthritis, angina, asthma, diabetes, visual impairment or hearing problems.

^e The Childhood Trauma Questionnaire (CTQ) was used to assess self-reported experiences of childhood traumas before the age of 16.

^f The Adolescent Self-Rating Life Events Checklist (ASLEC) was used to assess adverse life events in the past 12 months.

^g The 27-item Resilience Scale for Chinese Adolescents (RSCA) was used to evaluate the resilience.

^h The Multidimensional Scale of Perceived Social Support (MSPSS) was used to assess individual perceived social support.

ⁱ Screen positive for depressive symptoms as measured by the Patient Health Questionnaire-9 (PHQ-9) score ≥ 5 .

^j Screen positive for depressive symptoms as measured by the Generalized Anxiety Disorder 7-item scale (GAD-7) score ≥ 5 .

Supplementary File 1:

Survey:

Demographic characteristic

1. Name: ; Sex: male/female; Ethnicity: han/ other ethnicities: ; telephone:
2. Birthplace: urban/town/rural; birthday:_____
3. Parental marital status: married/divorced/widowed/separated.
4. Were you left behind in your hometown by one or both of your parents for more than 6 months before age 16? Yes/No
5. To the best of your knowledge, have any of your parents or siblings (same father or same mother) suffered from mental illness? Yes/No
6. Any other chronic conditions e.g. arthritis, angina, asthma, diabetes, vision/hearing problems? Yes/No
7. Have you ever been diagnosed with any mental illness? 1. Yes 2 No
If answered yes, continue with the question: what is your diagnosis: 1. depression 2. anxiety disorder 3. obsessive-compulsive disorder 4. bipolar Disorder 5. schizophrenia 6. other _____

Lifestyle factors

1. Have you smoked cigarettes? Yes/No
2. Have you drunk so much alcohol that you have been really drunk? Yes/No
3. Do you play sports on a regular basis? Yes/No

Childhood traumas (Childhood Trauma Questionnaire, CTQ)

Instruction: This questionnaire asks about your experience before the age of 16. Please select the answer from the five options that best suits your situation. (1=never; 2=occasionally; 3=sometimes; 4=often; 5=always)

1. No one in my family cared about my food.
2. I had someone to look after me, to protect me.
3. At that time, some people in my family called me "stupid," "lazy," or "ugly."
4. At the time, my parents couldn't take care of the family because of alcohol, drugs or gambling.
5. Someone in my family valued me at the time.

6. No one in my family cared about my clothes.
7. I felt loved by my family at the time.
8. At the time, I felt like my parents wished they'd never had me.
9. Someone in the family injured me so badly at the time that I had to go to the hospital.
10. At the time, my family's situation needed to be improved.
11. Someone in my family was beating me so much that my skin was bruised or scarred.
12. At that time someone in the family punished me with a belt, rope, board or other hard object.
13. At that time, my family cared for each other.
14. Someone in my family said something insulting or upsetting to me at the time.
15. I was physically abused.
16. I think my childhood was more perfect than anyone else's.
17. At the time, I was beaten so badly that I attracted the attention of people like teachers, neighbours and doctors.
18. I thought someone in my family hated me.
19. The family was very close at the time.
20. At the time someone touched me or let me touch him/her in a sexually charged way.
21. I was threatened to have sex with him/her.
22. I thought my home was too good to be true at the time.
23. There was an attempt to get me to do or watch something sexual.
24. I was molested at the time, e.g., hooliganism, touching, etc.
25. At that time my mind was tortured or abused.
26. Some people cared about my health.
27. I was sexually abused.
28. At that time, my family was my source of strength and support.

Recent adverse life events (Adolescent Self-rating Life Events Checklist, ASLEC)

Instruction: During the past 12 months, have any of the following events happened to you or your family? Please read each of the following items carefully and choose

the option that best suits your situation according to the degree of distress caused by the event. 1. No or no impact; 2. mild impact; 3. moderate impact; 4. severe impact; 5. extremely severe impact

1. Being misunderstood or misjudged.
2. Suffer discrimination and neglect.
3. Failed or unsatisfactory exams.
4. Disputes with classmates or close friends.
5. Significant changes in living habits (diet, rest, etc.).
6. Don't like to go to school.
7. Unsuccessful or broken relationships.
8. Being away from family for a long time.
9. Heavy study load.
10. Tension with teachers.
11. I am seriously ill.
12. A friend or relative is seriously ill.
13. Death of a relative or friend.
14. Stolen or lost items.
15. Losing face in public.
16. Family financial difficulties.
17. Conflicts within the family.
18. Anticipated election (e.g., scholarship, student council or class officer election) is not realized.
19. Being criticized or disciplined.
20. Transferring to another school or taking a break from school.
21. Being fined.
22. Pressure to go to higher education.
23. Fighting with others.
24. Being scolded by parents.

25. Family pressure to study.
26. Accidental scares, accidents.
27. If there are any other incidents, please explain.

Resilience (The Resilience Scale for Chinese Adolescent, RSCA)

Instruction: According to your actual situation., choose the option that best suits your situation for each item.

Options: 1 being "not at all", 2 being "not matching up", 3 being "not sure", 4 being "relatively compatible", and 5 being " fully compliant ".

1. Failure always discourages me.
2. It is difficult for me to control my unpleasant emotions.
3. I have clear goals in my life.
4. I am generally more mature and experienced after experiencing setbacks.
5. Failures and setbacks can make me doubt my abilities.
6. When I encounter unpleasant things, I can never find a suitable person to talk to.
7. I have a friend my age to whom I can tell my difficulties.
8. My parents respect my opinion.
9. When I'm in trouble and need help, I don't know who to go to.
10. I think the process of things helps one grow more than the outcome.
11. When faced with difficulties, I usually set a plan and a solution.
12. I'm used to keeping things inside rather than confiding in people.
13. I think adversity has a motivating effect on people.
14. Adversity is sometimes an aid to growth.
15. My parents always like to interfere with my ideas.
16. At home, no one always listens to what I say.
17. My parents lack confidence and moral support for me.
18. I take the initiative to talk to others when I am in trouble.
19. My parents never scold me harshly.
20. I will concentrate all my energy when facing difficulties.

21. It usually takes me a long time to forget unpleasant things.
22. My parents always encourage me to do my best.
23. I can adjust my emotions very well in a short time.
24. I will set goals for myself to push myself forward.
25. I think everything has its positive side.
26. I don't want to tell others when I am in a bad mood.
27. I have big mood swings and am prone to ups and downs.

Social support (MPSS)

Instruction: According to your actual situation., choose the option that best suits your situation for each item.

Options:1= extremely disagree; 2=strongly disagree; 3=slightly disagree; 4=neutral; 5=slightly agree; 6=strongly agree; 7=extremely agree

1. There are people (teachers, classmates, relatives) who are there for me when I have problems.
2. I was able to share joys and sorrows with some people (teachers, classmates, relatives).
3. My family has been able to help me in concrete ways.
4. I can get emotional help and support from my family when needed.
5. Some people (teachers, classmates, relatives) are a real source of comfort when I'm in trouble.
6. My friends can really help me.
7. I can count on my friends in times of trouble.
8. I can talk to my own family about my problems.
9. My friends can share my joys and my sorrows.
10. There are people in my life (teachers, classmates, relatives) who care about my feelings.
11. My family willingly assists me in making decisions.
12. I can discuss my problems with my friends.

PHQ-9

Instruction: During the two weeks when you felt most depressed or emotionally drained in life, how often have you felt troubled by any of the following? (none/a few days/ more than half the time/ almost every day)

1. Little interest or pleasure in doing things.
2. Feeling down, depressed, or hopeless.
3. Trouble falling or staying asleep, or sleeping too much.
4. Feeling tired of having little energy.
5. Poor appetite or overeating.
6. Feeling bad about yourself -- or that you are a failure or have let yourself or your family down.
7. Trouble concentrating on things, such as reading the newspaper or watching television.
8. Moving or speaking so slowly that other people could have noticed. Or the opposite - - being so fidgety or restless that you have been moving a lot more than usual.
9. Thoughts that you would be better off dead, or of hurting yourself in some way.

Gad-7:

Instruction: during the two weeks when you feel most stressed and anxious in life, how many times have you felt any of the following problems? (none/a few days/ more than half the time/ almost every day)

1. Feeling nervous, anxious, or on edge.
2. Not being able to stop or control worrying.
3. Worrying too much about different things.
4. Trouble relaxing.
5. Being so restless that it's hard to sit still.
6. Becoming easily annoyed or irritable.
7. Feeling afraid as if something awful might happen.

Sleep problems:

1. Do you have difficulty in falling asleep: Yes/No.
2. Do you have difficulty in waking up easily?: Yes/No.
3. Do you have difficulty in early awakening?: Yes/No.

Psychotic-like experience

Instruction: According to your actual situation., choose the option that best suits your situation for each item.

Options: 1.None/2.Sometimes/3.often/4.Nearly always.

1 Have you ever felt as if people seem to drop hints about you or say things with a double meaning? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 2; If otherwise, the system will go on to present 1.1

1.1 In the last month, have you ever felt as if people seem to drop hints about you or say things with a double meaning? (none/sometimes/often/nearly always)

2 Have you ever felt as if some people are not what they seem to be? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 3; If otherwise, the system will go on to present 2.1

2.1 In the last month, have you ever felt as if some people are not what they seem to be? (none/sometimes/often/nearly always)

3 Have you ever felt that you are being persecuted in anyway? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 4; If otherwise, the system will go on to present 3.1

3.1 In the last month, have you ever felt that you are being persecuted in anyway? (none/sometimes/often/nearly always)

4 Have you ever felt as if there is a conspiracy against you? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 5; If otherwise, the system will go on to present 4.1

4.1 In the last month, have you ever felt as if there is a conspiracy against you? (none/sometimes/often/nearly always)

5 Have you ever felt that people look at you oddly because of your appearance? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 6; If otherwise, the system will go on to present 5.1

5.1 In the last month, have you ever felt that people look at you oddly because of your appearance? (none/sometimes/often/nearly always)

6 Have you ever felt as if electrical devices such as computers can influence the way you think? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 7; If otherwise, the system will go on to present 6.1

6.1 In the last month, have you ever felt as if electrical devices such as computers can influence the way you think? (none/sometimes/often/nearly always)

7 Have you ever felt as if the thoughts in your head are being taken away from you? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 8; If otherwise, the system will go on to present 7.1

7.1 In the last month, have you ever felt as if the thoughts in your head are being taken away from you? (none/sometimes/often/nearly always)

8 Have you ever felt as if the thoughts in your head are not your own? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 9; If otherwise, the system will go on to present 8.1

8.1 In the last month, have you ever felt as if the thoughts in your head are not your own? (none/sometimes/often/nearly always)

9 Have your thoughts ever been so vivid that you were worried other people would hear them? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 10; If otherwise, the system will go on to present 9.1

9.1 In the last month, have your thoughts ever been so vivid that you were worried other people would hear them? (none/sometimes/often/nearly always)

10 Have you ever heard your thoughts being echoed back at you? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 11; If otherwise, the system will go on to present 10.1

10.1 In the last month, Have you ever heard your thoughts being echoed back at you? (none/sometimes/often/nearly always)

11 Have you ever felt as if you are under the control of some force or power other than yourself? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 12; If otherwise, the system will go on to present 11.1

11.1 In the last month, have you ever felt as if you are under the control of some force or power other than yourself? (none/sometimes/often/nearly always)

12 Have you ever felt as if a double has taken place of a family member, friend or acquaintance? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 13; If otherwise, the system will go on to present 12.1

12.1 In the last month, have you ever felt as if a double has taken place of a family member, friend or acquaintance? (none/sometimes/often/nearly always)

13 Have you ever heard voices when you are alone? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 14; If otherwise, the system will go on to present 13.1

13.1 In the last month, Have you ever heard voices when you are alone? (none/sometimes/often/nearly always)

14 Have you ever heard voices talking to each other when you are alone? (none/sometimes/often/nearly always)

If students choose “none”, the system will present problem 15; If otherwise, the system will go on to present 14.1

14.1 In the last month, have you ever heard voices talking to each other when you are alone? (none/sometimes/often/nearly always)

15 Have you ever seen objects people or animals that other people can't see? (none/sometimes/often/nearly always)

If students choose “none”, the system will end; If otherwise, the system will go on to present 15.1

15.1 In the last month, have you ever seen objects people or animals that other people can't see? (none/sometimes/often/nearly always)