I. Introduction

A. Problem statement

Proper mental health is critical for adolescent growth, and one's mental health dramatically impacts their performance in class and their future development in life. With the development of society and the increased complexity in people's daily lives, issues concerning mental health are becoming more and more serious. In China, Han et al. (2017) estimated that the prevalence of non-suicidal self-injury in middle school students (aged 13-18 years) is 27.4%, while the worldwide prevalence of the aggregate lifetime and 12-month prevalence of non-suicidal self-injury in children and adolescents were estimated in 2019 as 22.1% and 19.5% (Lim et al., 2019). Therefore, students' mental health should be paid more attention in China.

B. Stakeholders: 1) subjects 2) beneficiaries 3) implementation partners 4) other actors

The subjects for this RCT will be teenage students in China. The main beneficiaries would be the teenagers under the treatment group, receiving the benefits of mental health care. The schools we work with will be our implementation partners.

Besides the direct beneficiaries, the schools will likely benefit from improved academic performance, and the parents of the students will also be impacted as their children will have more time away from home.

Additionally, this research would contribute to the literature on the benefits of mental health care, specifically in a school-based setting.

C. Motivation/context

In China, there is generally an absence of systematic psychological education in school before university (Zhang & Du, 2018), and there are huge discrepancies in the provision of school-based mental services across different regions (Shi, 2018; Zhang & Du, 2018). In most rural primary and secondary schools, counseling services are missing (Ye & Fang, 2010). Several experiments have been conducted in China to test the effectiveness of school counseling interventions. For example, group counseling interventions were carried out to check their effectiveness to help address anxiety (Wei, 2000; Su, 2002), and classroom guidance lessons were provided to check if such classes can help

improve high school students' self-efficacy and decision-making (Dou et al., 2016). For our intervention, we will use a national-representative sample, and add psychological education into treatment schools' curricula as well as provide individual mental counseling.

II. Intervention

A. The Theory of Change

For the short-term goal, we expect that our intervention will improve the students' interpersonal relationships and ability to manage stress and pressure, which can help improve their mental health statuses. In the long term, improved mental health is expected to help students perform better academically in school and consequently improve students' long-term life outcomes (such as higher earnings and lower probability of committing crimes).

B. Which market failure is your intervention trying to fix? And How?

We assume that adolescents receive mental health treatment/counseling less than which would be ideal for society. There could be many reasons for this. One reason is that the short term effects of mental health care might not be as pronounced. In that case, people might have difficulty justifying paying for such treatment up front. Additionally, poor mental health is a negative externality to society. People's mental health will not only affect themselves but also have an impact on others, so reducing mental health issues is very important for the development of the social workforce, and improving social security. If we display that our intervention of counseling leads to a positive change in the long-term life trajectory of adolescents, this study could be used to advocate for increasing the accessibility and affordability of mental health care, as well as making people less hesitant to try such treatments for themselves.

C. What can we learn from this RCT? Scale up? External validity?

This RCT would help inform policy-makers on how much should be invested into mental health care access. We can't directly extrapolate results from Chinese data to the United States or other countries, because the culture and opinions around mental health care are very different between China and the US. However, if the results are promising in China, it would prompt further research into mental health care in the US and beyond. Additionally, promising results could encourage scale up, extending mental health care access to more students.

III. Design & Treatment

A. What kind of data will be used?

Theoretically, data about the academic grade and a series of mental health indicators need to be collected before and after the experiment for both the treatment and control groups. A mid-term data collection for the same information above should also be scheduled five months after the implementation.

However, due to the time limit at this stage, we will be using the dataset based on China Education Panel Survey (CEPS) from China Survey and Data Center of Renmin University of China. CEPS is a nationally representative large-scale tracking survey which aims to reveal the influence of families, schools, communities and macro social structures on individuals' educational output, and to further explore the role of educational output in individuals. CEPS used the 2013-2014 school year as the baseline, two contemporaneous cohorts of junior high school grade 1 (grade 7) and junior high school grade 3 (grade 9) as the starting point of the survey, and 28 county-level units (counties, districts, and cities) were randomly selected as survey sites from across China using the average education level of the population and the proportion of the mobile population as stratification variables. The survey was implemented on a school basis, and 112 schools and 438 classes were randomly selected for the survey in the selected county-level units. All students in the selected classes were included in the sample, and a total of about 20,000 students were surveyed in the baseline survey.

CEPS uses questionnaires as the main instrument to survey all surveyed students and their parents or guardians, classroom teachers, main classroom teachers, and school directors.

CEPS also conducts comprehensive cognitive ability tests, basic personality tests, and collects results of important exams (midterm exams, midterm exams, college entrance exams, etc.), and plans to organize health and physical exams for students and collect biomedical indicators, using a combination of tools and techniques to collect high-quality data.

B. What's the treatment design? Is it experimental?

Our experiment will have two groups: the treatment group and the control group, randomized by school and stratified by average academic performance. While randomizing by school brings a couple

theoretical issues, we choose this unit of randomization because it is logistically the simplest, in terms of hiring trained counselors and gaining school cooperation. For the schools under the control group, there will be no change in normal activities. For the schools under the treatment group, the students will be provided with one-on-one counseling services by social workers and professionals and will attend weekly hour-long psychological courses about how to address pressure and deal with peer and family relationships. The whole experiment is expected to last for an academic year (one year excluding summer and winter vacations).

C. Potential issues re: intervention, data collection, stakeholders. Sample recruitment etc.

There might be logistical issues with standardizing treatment to be consistent throughout all subjects in the experimental group. Certain counselors might be more "effective" than others, and in this way our treatment group is not completely homogeneous.

Furthermore, we expect there to be an issue of compliance in our treatment group. Factors such as the stigma around mental health could mean that students would refuse counseling even if offered. Additionally, students may feel pressure from parents and schools not to participate in counseling because it interferes with their schoolwork and delays their time.

As briefly mentioned in our treatment design section, randomizing by school does present the issue that certain schools may be better at preparing their students for the future than others even without the intervention. Hopefully, this bias will be reduced by our stratification, but it still is an issue to be cognizant of.

Lastly, our experiment will be conducted over a large period of time. The presence of external factors will weaken the connection that we can make between the administered treatment and students' performance. However, due to the scale of our dataset, and the design of our RCT, we expect to still be able to claim potential correlations between the two.

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