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Chinese college students' SCL-90 scores and their relations to the college performance☆

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ABSTRACT

Since the Symptom Checklist-90 (SCL-90) was introduced in China about 30 years ago, most studies with the instrument were conducted among clinical samples. This study tried to explore factor structure in a non-clinical and college student sample. We also planned to find if the SCL-90 scores are correlated with any school performance of the college students, such as grades and extra curriculum activities. The instrument together with a full-length questionnaire was administered to 1125 undergraduate students in a four-year university in China. Principal component factor analyses yielded a factor structure with some differences from those previously reported for other populations. We only derived four distinct factors: depression, somatization, obsessive–compulsive, and phobic anxiety. interpersonal sensitivity, anxiety, hostility, paranoid ideation, and psychoticism all failed to yield. Reliability and validity tests proved that SCL-90 could be used on the sample of Chinese college students. Results showed that Rural/urban location, the only child status, attending sports competition, and wining an award in publishing articles are significantly associated with the SCL-90 scores. Students who attended sports competition had lower SCL-90 scores while students who won an award from publishing articles had higher SCL-90 scores than students who did not.

1. Introduction

The Symptom Checklist 90 (SCL-90) is one of the most popular psychopathological tests for clinical populations and is becoming an established measure of psychiatric distress in general populations of different cultures in the world. It is also called the Self-Reporting Inventory, or Hopkin's SCL (Derogatis et al., 1973). The precursor of the scale was the "Discomfort Scale" (Parloff and Kelman, 1954), which was revised in 1965, and its name was changed to Symptom Distress Checklist (Lipman et al., 1969). At that time, the most popular edition was SCL-58, which was based on both clinical and statistical approaches. However, the later editions, SCL-72 and SCL-90 were based on the factor analysis (Olsen et al., 2004).

Fully established in Western societies, the SCL-90 has not been well implemented in China with large enough samples. Establishing the reliability of the SCL-90 in Asian populations such as Chinese constitutes an important step forward for several reasons. First, the use of SCL-90 as a screening measure for psychiatric symptoms extends well beyond North-American studies to different European research settings but not that much in Asia (Miotto et al., 2010; Schmitz et al., 1999; Schrier et al., 2010). Second, both expression and perception of distress may be culturally mediated and it is important to study and validate the instrument in a non-Western society (Nichter, 2010). Third, and consistently, there is mounting evidence of the extreme variability and instability of the SCL-90 factor structure across diverse populations, and we are interested in seeing what patterns exist in non-Western culture such as China (Schmitz et al., 2000; Schwarzwald et al., 1991). As findings from North-American and European samples cannot be simply generalized to Asian populations, the ability of the SCL-90 and its translated versions to produce an acceptable profile of symptom dimensions must be explicitly tested in Asian samples before the instrument can be reliably be used in clinical and research practice.

This inventory includes a large span of psychiatric symptoms, ranging from cognitions (emotions, thoughts, and behavior) to activities (habits, relationships, and diet). It includes 90 self-reporting questions, and each question has a 5-point Likert scale (0 for not at all, 1 for a little bit, 2 for moderately, 3 for quite a bit, 4 for extremely). An early version SCL-58 was reported to yield five

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subscales scores. Then as the SCL-58 developed into SCL-90, five subscale scores have expanded into nine. These nine subscale dimensions are (1) Somatization (SOM), (2) Obsessive–Compulsive (O–C), (3) Interpersonal-Sensitivity (INT), (4) Depression (DEP), (5) Anxiety (ANX), (6) Hostility (HOS), (7) Phobic-Anxiety (PHOB), (8) Paranoid Ideation (PAR), and (9) Psychoticism (PSY) (Derogatis and Cleary, 1977). The SCL-90 distinguishes people who already have psychiatric symptoms from those who do not. It can screen the people who possibly have a psychiatric symptom, the type of the symptom, and to what extent. A higher total score on the SCL-90 indicates a more urgent need for individual intervention.

The SCL-90 was first introduced in China by Wang in 1984 (Wang, 1984). Wang first translated the English scale into Chinese, which became widely used in China since then. After the Chinese version SCL-90 was published, Jin et al. (1986) conducted a survey that tested a sample of 1388 individuals in China, including 724 males and 664 females. The purpose of the survey was to establish a baseline score of the SCL-90 for each different population in China. The study was a landmark in the development of the SCL-90 in China (Jin et al., 1986). From then on, the SCL-90 started to become popular in research. In another study conducted in China by Tang et al. (1999), findings published on the Chinese SCL-90 data were Meta analyzed and the baseline scores of the SCL-90 were amended (Tang et al., 1999). While most studies in the United States on the SCL-90 have been on outpatients, the majority of the studies in China with the instrument have been on clinical samples.

2. Method

2.1. The sample

The sample for this study consists of the undergraduate students aged 18–22 years from a four-year university in Beijing, China, in Fall Semester of 2010. A total of 1125 students evenly from all the four years of standing participated in the questionnaire survey.

2.2. Instruments

We used a full-length questionnaire that includes the measure of the SCL-90 as well as a number of demographic variables. Other measures in the instrument we used for this study cover students' life and mental health on campus, such as their grades, the activities they have participated in, and the awards they have received on campus. The Chinese version of the SCL-90 we used in our questionnaire was translated and published in China (Wang, 1984). The established scale was translated and back translated a number of times and the confirmed to accurately reflect the meaning of the scale in the original English version. The activities a student could have participated in include (1) being a leader of students' organization, (2) field practicums during Summer and Winter breaks, (3) publishing articles, (4) writing competitions, (5) recreational activities, (6) sports competitions, (7) student union activities, and (8) talents competition.

2.3. Administration of the survey

This survey was strictly executed by random sampling. First, we obtained the student roster for the university administration and exported the list into the SPSS data program. A systematic random sampling was conducted with the SPSS program to create a list of the randomly selected students. With the help of the University Student Personnel Department, we were able to approach all the students on the selected list for the questionnaire survey. Most of them were called to a big classroom in the evening to administer the questionnaire survey in groups. We had our staff members in the classrooms to make ensure the procedure going on well. Informed consent was obtained from each student participant. They had the rights to refuse the survey or quit whenever they want.

2.4. Statistical analyses

The analysis of the symptom items was conducted in three parts. First, we used Cronbach's alpha to examine the consistency of these 90 items. Second, we used principal component factor analyses to determine the underlying structure of the 90 items. Third, we used *t*-test and *F* test to see the relationships of each factor scores and some independent variables.

3. Data analyses and results

3.1. Descriptive presentation of the sample

Table 1 illustrates the demographic distribution of the sample. In the table, "Hometown Location" refers to whether the student comes from rural or urban areas. "Party Affiliation" indicates if the student is a Chinese Communist Party (CCP) member, a political status in the student population. In today's China, a CCP party or league membership is usually an indication of the individual's integrity and ability to socialize and work with others. In order to observe the difference between grades, we recode the "freshman" and "sophomore" into "Low Level," and "junior" and "senior" into "High Level."

3.2. Factor analyses of the SCL-90

Even though Derogatis and Lipman have already acknowledged us the nine subscales, when SCL-90 were used to a new sample, the factor structure must be empirically established. So, in this part, we use principal component factor analyses to test whether we can derive the same nine subscales. In the principal component factor analyses, we fixed the number of factors to be extracted to nine, so that we can just extracted nine factors.

Nine factors with eigenvalues greater than 1.0 were extracted, explaining a total of 52.98% of the variance in scores. However, the first factor alone accounted for 34.62% of the variance of the instrument, which was almost eight times of the variance explained by the second factor that explained only 4.96% of the variance. The third factor explained the 3.08% of total variance. Then the eigenvalues of the rest of the factors

Table 1
The study sample description ($N = 1125$).

Variable	Frequency	Valid percent
Gender		
Male	430	38.2
Female	695	61.8
Grade status (year in School)		
Low level	653	58.1
High level	472	41.9
Hometown location		
Urban	745	66.6
Rural	374	33.4
Only child status		
Only child	849	75.8
Not only child	272	24.2
Political affiliation		
Communist Party	211	19.0
Communist Youth League	879	79.0
No party affiliation	23	2.0