

## A study on personality psychology test and exercise intervention of Li and Han high school students from the perspective of social environment adaptation

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**Abstract:** 65 Li high school students and 99 Han high school students were randomly selected from 3 middle schools in Haikou City and Wuzhishan City of Hainan Province as research objects. scl-90 was used to test their mental health status, and according to the statistical inference of the data, artificial intelligence planning intervention strategies were proposed to achieve the purpose of mental health education.

### 1. Preface

The development of society has a certain influence on the mental health of middle school students. Fierce competition and schools overemphasize the enrollment rate, so that families and schools only pay attention to the imparting of knowledge and intellectual education, ignoring the healthy development of students' psychology. At present, many students are only children; Parents want their children to have a bright future. Lifting and marking become boosters of mental balance. Students have to face many problems, which make them feel confused and confused. But they don't know how to resolve and face the psychological pressure[1]. As educators, they know exactly the causes of students' psychological problems, and can consciously avoid the occurrence of students' psychological problems in education. There are many reasons for students' psychological problems, but the main reasons are learning pressure, social influence, family environment and teacher education methods, which reflects many contradictions between school education and social family, so the attention and research of students' mental health has become the focus of our society. This study investigated the mental health status of Han and Li high school students in Hainan, and proposed artificial intelligence planning intervention strategies through statistical inference, so as to achieve the purpose of mental health education for students.

### 2. Subjects and Methods

#### 2.1 Object of Study

This research took middle school students of Hainan province as the research community, Li and Han national students of each 3 middle schools from Haikou and Wuzhishan city composed the investigated population.

#### 2.2 Research Methods

Documentation Method. The author searched on "mental health", "Sports Sociology", "Health Education" and other aspect books, collected the valuable material which the research subject needed, and comprehensively referred to various research results, which laid the foundation for this research's selected topic and the related theory support[2].

Questionnaire Method. The study selected 65 Li national and 99 Han national high school students from each 3 middle schools of Haikou and Wuzhishan city in Hainan province as research subjects, used “SCL-90 mental health evaluation scale” to test.

Mathematical statistics method. The thesis used U-test, T-test statistics and analysis.

Select indicators: number of positive items (interpretation), Total (interpretation), factor mean score (factor scores to explain), factor standard deviation. Comparative indicators: the normal population of China as the standard norm<sup>[3]</sup>.

### 3. Results and Analysis

#### 3.1 Analysis of scl-90 Positive Items on High School Students in Hainan

Table 1 The distribution of the number of scl-90 positive items on high school students in Hainan

sort	norm	High school sample	ethnic group		sex	
			Han	Li	male	female
<i>n</i>	—	164	99	65	98	66
$\bar{x}$	24.92	25.19	23.67	37.27	26.09	22.75
<i>s</i>	18.41	20.36	19.81	21.29	20.38	20.38

Through statistics on the number of positive items of the samples, statistical results are shown in Table 1, SCL-90 positive items for the questionnaire items on high school students in Hainan Province is  $25.19 \pm 20.36$ , National adult healthy norm is  $24.92 \pm 18.41$ , the number of scl-90 positive items on high school students in Hainan province is slightly higher than that of national adult healthy norm.

#### 3.2 Analysis of scl-90 Total Score Situation on High School Students in Hainan

Through the statistics on scl-90 project total situation and the detection rate of psychological problems of high school students in Hainan Province, statistical results are shown in Table 2, the scl-90 total score of high school students in Hainan Province is  $127.56 \pm 40.15$ , the total score of norm is  $120.96 \pm 38.76$ , detection rate of psychological problems is 7.46%, which is higher than the norm. The scl-90 total score of junior middle school students with physical exercise is  $110.77 \pm 25.23$ , the detection rate is 1.22%, which is much lower than the norm. The total score of junior middle school students with lack of physical exercise is  $155.94 \pm 45.66$ , detection rate of psychological problems is 19.35%, which is much higher than the norm again.

Table 2 The scl-90 project total situation and the detection rate of psychological problems on high school students in Hainan

sort	norm	High school sample	ethnic group		sex		physical exercise	
			Han	Li	male	female	often	not often
<i>n</i>	—	164	99	65	98	66	98	66
$\bar{x}$	120.96	127.56	124.22	154.07	130.34	120	110.77	154.04
<i>s</i>	38.76	40.15	37.30	52.34	41.42	35.91	25.23	44.99
max	—	270	265	270	270	241	216	270
$\geq 204$	—	7	6	1	6	1	1	6
$\geq 230$	—	0	0	0	0	0	0	0
$\geq 234$	—	3	1	2	2	1	0	3
detection	—	10	7	3	8	2	1	9
detection rate(%)	—	7.46	5.88	20.00	8.16	5.56	1.22	17.31

#### 3.3 A Comparison between the Different National Students and the Norm

Table 3 shows the comparison between students of different ethnic groups and the Hainan norm. The scores of Han students in the four factors of somatic, interpersonal, terror and psychosis are all lower than the Hainan norm, while the scores of Li students in the six factors of compulsion, anxiety, hostility, terror, paranoia and psychosis are all lower than the Hainan norm, and there are significant

and very significant differences in u test [4]. The above situation shows that the mental health level of high school students in Hainan Province is lower than the national average, and the mental health level of Li high school students is even lower than that of Han high school students in Hainan Province.

Table 3 The factor mark on the different national middle school students and compared with the norm in Hainan

factor	Hanethnic group (n = 99)	Li ethnic group (n = 65)	norm	u -test	
				Han	Li
somatization	1.22 ±0.38	1.32 ±0.35	1.37 ±0.48	* *	
compulsion	1.62 ±0.62	1.98 ±0.67	1.62 ±0.58	* *	
interpersonal relationship	1.53 ±0.56	1.78 ±0.54	1.65 ±0.61	* *	
depression	1.44 ±0.54	1.65 ±0.57	1.50 ±0.59	* *	
anxiety	1.37 ±0.46	1.64 ±0.57	1.39 ±0.43	* *	
hostility	1.46 ±0.54	1.75 ±0.74	1.46 ±0.55	* *	
terror	1.33 ±0.46	1.51 ±0.54	1.23 ±0.41	**	
paranoid	1.46 ±0.56	1.66 ±0.68	1.43 ±0.57	*	
psychosis	1.41 ±0.53	1.66 ±0.57	1.29 ±0.42	* *	
other	1.51 ±0.56	1.74 ±0.65	—	* *	

#### 4. Conclusion and Analysis

The mental health level of high school students in Hainan is obviously lower than the domestic adult's health mold, and the mental health condition of Li national middle school students is worse than the mental health condition of Han national middle school students in Hainan. This explained that the mental health question of Li national high school students is serious day by day in Hainan.

The mental health state of junior middle school male students is better than that of female student in Hainan, specially in the compulsion, anxiety, hostility, phobia, paranoid these 5 aspects appears more prominent; But the mental health state of High school students in Hainan is better than that of junior middle school students.

The mental health level of the middle school students frequently taking part in physical exercise is lower than normal level in Hainan, but middle school students without physical exercise in compulsion, interpersonal relationship, depression, anxiety, hostility, paranoia, and psychosis these 7 factor minutes are higher than normal level in Hainan[5]. All sorts of situations indicated that regular physical exercise have some positive effects on the mental health of high school students in Hainan.

#### 5. Intervening Measures of Sunshine Sports

How to promote the reform of physical education is the purpose to regulate students' psychological characteristics and improve their mental health. We analyzed these mental health problems as students exist: People with symptoms of compulsive disorder should relax themselves, keep good mood, kindness, reality and normal, rather than grief, hostile and intolerance. Therefore, we could consciously make full use of characters of physical to improve the mental atmosphere of students. They shall learn to relax themselves, be happy and have quick thoughts. Hereon, we give some suggestions focused on physical education of middle school students accordingly:

##### 5.1 Emphasizing the Entertainment of Physical Education

According to the research, if a student loves exercise, who will benefit mental health from it. Otherwise, it's impossible to make him satisfied. So students could experience happiness and love physical training from its lively and interesting teaching methods, and good for their mental health, especially for those students with compulsive disorder and grief.

## 5.2 Improving the Mutual Assistance of Physical Education

Sport psychologists thought the individual is easily fascinated by the group because of some reasons as bellow: self-identity, social enforcement, competition and opportunity of participation. Sports participator can keep closely with others. Gym teacher shall develop communication and encourage teamwork among students. It's a good skill to improve interpersonal relation and keep mental health, especially for those impulsive disorders<sup>[6]</sup>.

## 5.3 Focus on Communality of Physical Education

There are all kinds of sports; communality sport is the best way to develop mental health for students. Communality is not just called exercise together, but for the power of communality. Take balls and relay race for example, students could be encouraged and helped from the communality, and they will understand their responsibilities and obligations as a member of the communality. It has the function to educate and regulate those students who are grief, sensible and illiberal.

## 5.4 The Encouragement of Sunshine Physical Training.

By analyzing, we found students from Li national Middle School, Hainan Province had some mental health problems, but once sports intervened, they could improve obviously. As a physical educator, we should always grasp the psychological characteristics of students; take many kinds of training methods to intervene. In addition, we should encourage students to go outside and breathe fresh air and join in some appropriate sports when they are under great pressures. Take exercises one hour every day could relieve the nervousness, improve physical and mental health, and promote learning efficiency.

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