

# On the Impact of Environmental Design on Mental Disorders in Adolescents

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**Abstract.** High prevalence of attention deficit hyperactivity disorder, conduct disorder, oppositional defiant disorder, tic disorder, obsessive-compulsive disorder and separation anxiety disorder in the population aged 6 to 11 years is becoming an increasingly urgent social problem, in order to solve which various methodologies have been raised, but all of which have been proved that negative effects coexist with the expected results. This passage is going to solve the dilemma that no perfect solution is precedent and available. In this passage, a new mitigation method which is asserted to be both efficient and harmless is raised. This passage indicates the potential causes of mental disorders occurring among adolescents, which are biological reasons, endocrine functions, physical causes, family factors and parental rearing methods. Traditionally utilized methodologies, which are drug therapies, sensory deprivation laws, room restriction laws, however, have been proved to be equipped with certain disadvantages. Therefore, it is anticipated that the validity of the mechanism raised in the passage can be overhauled by professionals and that the methodology itself can be generalized and utilized in order to solve the serious problem that adolescents are suffering from mental disorders which the entire society is willing to and eager for certain actions to be taken.

**Keywords:** Adolescent mental disorders; external factors; self-imposed factors; relief methods; take actions.

## 1. Introduction

According to the statistics of the World Health Organization, more than 20% of children and adolescents in the world are disabled due to mental disorders, and adolescent suicide is the third cause of death in the world. Major depressive disorder usually starts in youth, which can lead to psychosocial function of the serious damage and increases the risk of suicide, conduct disorder associated with behavior will continue to teenagers and even adults, characterized by drug abuse, juvenile delinquency, adult crime, anti-social behavior, marital problems, bad working relationship, low unemployment, interpersonal problems, and health. Because it is difficult to detect and diagnose children and adolescents with mental disorders, it is estimated that only 20% of children and adolescents with mental disorders have been correctly diagnosed and treated internationally, while only 5.8% in China, which is a worrying situation [1]. The situation is even more serious in China, where the foundation of mental health institutions is poor and there is a considerable shortage of mental health professionals for children and adolescents. We should call on the whole society to pay attention to the mental health of children and adolescents, publicize and popularize the knowledge of mental health, train a large number of mental health professionals for children and adolescents, and escort the healthy growth of children and adolescents [2]. The first sentence of the new moral education outline issued by the State Education Commission clearly states that “moral education means political, ideological, moral and mental health education.” Clearly regard mental health education as an important part of moral education. Among the health standards published by the United Nations, the first three are about mental health. Obviously, the importance of mental health in education. The psychological and spiritual pressure of modern life is increasing day by day. Teenagers are in a period of vigorous development and are one of the most vulnerable groups, which

will inevitably be affected. Different adolescents suffer from different mental disorders. Table a prevalence of diseases among children and adolescents with different characteristics.

The complaints of learning difficulties, behavioral abnormalities, psychotic symptoms, and obsessive-compulsive symptoms differed significantly between the adolescent group and the young group. Thomsen et al [3]. proposed that behavior disorder in adolescence may be the early manifestation of emotional disorder. Adolescents often have difficulties in expressing their feelings, and behavior is the main way for adolescents to express emotional tension. Hao Wei found that OCD was more common in young people [4]. The results of this study are consistent with the above studies. The predisposing factors of the juvenile group were more obvious than those of the juvenile group, because the juvenile had weaker anti-frustration ability and was more sensitive to external stimuli. Teenagers are not as mature as youth in dealing with problems. Teachers and parents should educate teenagers to face setbacks correctly [5].

In fact, the key to adolescent emotional disorders lies in “timely detection and timely treatment”. If the problem of general emotion has not reached the level of illness, parents and teachers need to understand the child's emotion, have empathy (psychological terminology is called “Empathy”), understand the child's thoughts and feelings, and then give positive guidance to help the child solve problems and vent their emotions. On the other hand, now many parents are very busy with their work and have no time to accompany their children. In this case, it is difficult for children to learn those good characters from their parents. Parents should pay more attention to their children. Any preaching can not compare with their parents' words and deeds.

The main aim of this article is to analyze the causes and alleviation of mental disorders in contemporary adolescents. First, biological causes are analyzed, analyzing the influence of biological and genetic factors on mental disorders in adolescents. Next, the endocrine causes of adolescents are analyzed. Adolescents' attention deficits are then analyzed from a physiological perspective. The influence of family causes and parental relationships on adolescents is also examined, as well as the influence of family education, schooling and social education on adolescent mentalities. Finally, we analyzed the effects of natural and artificial light on adolescents' emotions from the light factor. Table 1 shows the survey data on adolescents' gender, region, family history of mental disorders, children left behind, father's education and blood type.

**Table 1.** Prevalence of disorders among children and adolescents with different characteristics [6]

	factors	number	Ill cases	Prevalence (%)	<i>p</i>
Gender	Men	65	36	5.47	<0.05
	Women	742	18	2.42	
Age	6~10	502	6	1.19	<0.05
	10~14	630	40	6.35	
	15~16	268	8	2.99	
region	City	639	29	4.18	<0.05
	rural	707	26	3.68	

## 2. Causes of mental disorders in adolescents

### 2.1 Biological reason

Biological factors and genetic factors directly affect the mental health of parents and play a great role in the healthy development of the next generation. Parents' alcohol, drugs, marriage grass and other mental diseases can interfere with mental activities and cause addiction, and goods infringement and other mental diseases can also interfere with the family living environment, resulting in bad consequences for the next generation, such as abuse and lack of control by families and fathers. Professor Zhaomin has studied the harm of father substance abuse and children's mental disorders to

the development of children's psychosis. The research results show that the history of father substance abuse and mental disorders is related to children's mental disorders, and the history of father substance abuse and mental disorders is the main risk reason for minors to have widespread terror with panic disorder and rebellious disorder. Endocrine effect refers to the fact that children are at the climax of physiological development, and their biological functions are rapidly improved.

## **2.2 Endocrine causes**

Endocrine function is closely related to the occurrence of children's mental disorders. According to Professor Songxinyu's research, the occurrence of mental disorders in children and adolescents is also related to the endocrine effects of dictation. For example, the decrease of 5-hydroxytryptophan (5-HT) function can produce depression, and the increase of 5-HT function is related to mania. In addition, norepinephrine (NA) or 5-HT and receptor dysfunction in children's central floral meridians are the main causes of depression.

## **2.3 The physical causes**

Physical causes there are not many studies on the relationship between low birth weight children and mental diseases. After reaching the age of 14, low birth weight children are more likely to have mental problems and mental diseases, especially attention deficit, anxiety disorder and other mental problems.

## **2.4 Family reason**

Family factors, parental relationship and youth psychopathology have been paid attention to by experts in clinical psychiatry.

There are also data studies on the effects of parental relationship and family behavior on youth mentality, behavior patterns and mental health. The earlier theory about the family relationship of schizophrenia is Fromm's (1948) "schizophrenic mother" and bat ESON's so-called "double constraint", including the psychogenic root theory of mental disorders caused by traumatic experiences in childhood and the impact of wrong family education - family adverse effects and affective disorders family adverse effects, affective disorders, and the psychopathological characteristics of adolescents have been paid attention to by researchers all over the world in the field of clinical psychiatry. Social life events such as the relationship between family members. However, most of the parents of patients have different degrees of psychological problems, abnormal and negative emotions increase, rude behavior, increased pessimism, will further aggravate the psychological and behavioral abnormalities of patients, aggravate the disease. Therefore, paying attention to the psychological state of the patient's parents is the key to treatment [7]. Fear and anxiety caused by ignorance of the disease, pessimism, depression and even compulsive, hostile, paranoid and other bad emotions caused by social opinion and pressure are the main sources of psychological problems for patients' parents [8].

## **2.5 Educational style and environmental factors**

Parental rearing methods, time of enrollment and learning environment have a great impact on the generation and progress of juvenile mental diseases. Therefore, they often regard the bad results caused by the daily family living environment or the interpersonal tension between their parents as the main response to psychological stress disorders. Tang maoqin et al. Pointed out that there is a relationship between long-term family adverse effects and the occurrence of affective disorders.

Connections depend on their cognitive ability to things and their own psychopathological characteristics at the time of occurrence. Early death of family members, divorce from parents, breakup and other reasons are easy to lead to depression and even depression; personal and family health, safety and violence problems are also easy to lead to depression They have panic and anxiety.

In addition to the interference of psychological stress in the family, the relationship between family rearing patterns and schizophrenia has also been concerned. Parental education methods have a great effect on individual physical and mental growth and overall health.

The biggest impact on the public psychology is music. A common phenomenon is that when people feel happy, they will unconsciously hum songs; When people are in a low mood, they can use music to soothe their hearts and get out of the low mood. In ancient times, there was Xile in Yue Ji to diagnose diseases and diseases. There are records in ancient books that the five tones can express people's various mentality through the five internal organs, and can correct and guide people's wrong thinking. Nowadays, the former sound therapy has also been applied. For example, the Department of Stomatology of university students in Cambridge, England, has provided that the sound can be used to replace the drug anesthesia in the process of tooth extraction. It is of great practical significance to explore the application of music therapy in children's psychological teaching.

The data also showed that the higher the degree of artificial lighting at night, the higher the risk of suffering from affective disorder or anxiety disorder. In particular, children who live in a place with good artificial lighting at night have the best chance to get treatment for specific phobias of bipolar affective disorder. According to Paksarian and his coauthors, these associations deserve special attention because sleep and the interruption of circadian rhythm are common features of some mental disorders, including bipolar disorder.

## 2.6 The light factors

Studies have also shown that sleep disruption is likely due to the effect of artificial night light and human an important link between mental health outcomes should also be confirmed in future prospective studies. The survey results also pointed out the social problems exposed to artificial light sources, and pointed out that young people living in ethnic minorities, immigrant countries or low-income families are more likely to live in places with abundant outdoor light at night. To some extent, children's exposure to artificial light will disrupt the daily rhythm of life, such as sleep patterns, and may form another source of stress. As they are in a bad social state for a long time, they are more likely to have physical problems. Merikangas said, "although environmental light is only a threat to human sleep and emotional health care, it may be the focus of children's health care prevention and interference." the survey also shows that in groups isolated from the opposite sex, if there is a slight smell of the opposite sex scattered among them, people will turn anxiety into peace, and the troubled mood will return to tranquility.

In the situation where women are more concentrated, women in bad mood will be different from two people after they are exposed to the smell of the opposite sex, and they will be full of smiles. Sailors sailing in the sea for a long time often quarrel about some trivial things, but if they reach the harbor, their irritability will soon be better. In the past, it was always thought that the dry marine climate interfered with the mood of the crew.

But now I understand that, due to the long-term survival at sea, the crew cannot smell the smell of women, so the mood of the crew is bad. Smell has a significant impact on human life. I have inquired a lot of professional information about this at home and abroad, and most of them agree that smell is harmful to human body health effects, such as formaldehyde; Can take lives, such as carbon monoxide chemical weapons. However, there are few studies on the effects of smell on human health. It is strange that human beings pay more attention to the damage of smell to human health and the danger of life, but do not pay attention to the benefits of smell to health. According to psychology, emotion and smell are interrelated, and smell can trigger related memories in the brain.

Therefore, there are many reasons for adolescents suffering from mental disorders. Table 2 is the Logistic regression analysis of influencing factors of mental disorders among adolescents in Panzhihua City.

**Table 2.** Logistic regression analysis of influencing factors of adolescent mental disorders in Panzhihua city [9]

factors	B values	SE values	Wlad $x^2$ values	P values	OR values	The OR 95% CI
gender	-0.063	0.075	0.706	1.360	0.939	0.846~1.134
region	0.098	0.083	1.394	0.236	1.103	0.896~1.241
Family history of mental disorders	1.370	0.456	9.026	<0.001	3.936	2.044~12.209
Left-behind children	0.778	0.301	6.681	0.010	2.178	1.370~6.118
Father's education level	0.008	0.125	0.004	0.954	1.008	0.711~1.159
ABO Blood type	0.027	0.082	0.108	0.742	1.027	0.874~1.204

### 3. Methods to mitigate environmental stimuli

#### 3.1 Traditional mitigation methods

Since the Victorian era in the 18th century, the treatment of mental disorders through medication and mechanical restraint has been the most traditional and commonly used treatment. With the development of history, medication is still active in today's treatment regimen. Although it is a step up from the early dangers and uncertainties of electroconvulsive therapy and insulin coma therapy, most drugs are still in the dark. It's still very primitive. Today, the most common treatment is chlorpromazine but who would have thought that this substance was first used in the industry to make insecticides. It took years of research to discover that it could block dopamine receptors in the brain (specifically dopamine D2 receptors) and thus have antipsychotic effects [10]. However, this antipsychotic drug has a wide range of pharmacological effects. In addition to blocking effects, it also has the effect of strengthening other central inhibitors, antiemesis, lowering body temperature, inducing epilepsy, and affecting the heart and blood system [11]. Obvious adverse manifestations are inability to sit quietly, parkinsonism, liver injury, etc., which have a certain burden on the patient's health.

#### 3.2 Sensory deprivation

Most people's first reaction to the slightly technical term sensory deprivation might be to think of a prison. But as far back as 1954, psychologists at McGill University in Canada had conducted a professional experiment in sensory deprivation, in which participants were given translucent goggles to make it difficult to see; Limit his hearing with a monotone sound from an air conditioner; The arms are covered with paper sleeve and gloves, and the legs and feet are fixed with splints to limit their sense of touch. When subjects are left alone in the lab during the experiment, they begin to feel panic and hallucinate after a few hours. After three or four consecutive days in the lab, the subjects developed many psychopathological phenomena: delusional hallucinations; Lack of concentration and mental retardation; Tension, anxiety, fear, etc., will take several days to return to normal after the experiment [12]. The final experiments showed that such deep, harsh sensory deprivation was too much about shutting out external stimuli and not receiving any information from the outside world and actually not alleviating the neural stimulation. But a moderate amount of isolation from the environment is good for mental peace. Light sensory stripping such as zazen, yoga and qigong practice are easy to learn and can play a role in isolating the outside world.

#### 3.3 Floatation therapy

With the development of psychology, a more specialized and effective treatment method was born. Floatation therapy [13]. The excellence of this therapy is that it puts the patient in a relatively relaxed state, but with water of different composition, temperature and pressure to stimulate the body to maintain contact with the outside world. By re-experiencing early traumas during the immersion process to gain a higher level of awareness, the patient becomes more aware of his or her problems

and comes up with appropriate solutions to those problems. In addition to enhancing the relationship between the patient and the therapist, reducing the patient's symptoms allows the patient to become more aware of his or her own harmful behaviors or reactions and then actively cooperate with the physician to implement effective management. The obvious disadvantage is that the patient often needs to be left alone for several hours in such conditions, which may lead to severe discomfort if the patient is claustrophobic.

#### 4. Conclusion

Developing an appropriate and effective approach to healing mental disorders among teenagers have been one of the uniform targets of therapists and psychologists, to which the entire society is also looking forward. In this passage, inner reasons of adolescent mental disorders, which are biological reasons, endocrine causes, physical causes, family reasons, educational styles and environmental factors, and lights factors, are manifested. A sophisticated mechanism combines the factors and evokes mental disorders, against which plentiful methodologies, traditional mitigation methods, sensory deprivation methods, and water treatments, are raised. Nevertheless, all of the methods mentioned above have been evidenced that although they might be comparatively tender or efficient, drawbacks do exist, an inevitable problem waiting to be solved. In the future, the emergence of a novel treatment means that is not only tender but also effective is urgently anticipated by the society, because adolescents with mental disorders will be supplied with the possibility that the burden imposed onto them will be thoroughly unloaded and completely disappear with this approach. Therefore, this passage indicates the potential factors and existing treatment methods to provide relevant information for scientists, therapists and psychologists to design the reasonable and expected perfect solution to the complicated phenomenon that is bothering numerous adolescents at present.

#### References

- [1] Tao Guotai. Child and Adolescent Psychiatry, 2nd edition. Nanjing: Jiangsu Science and Technology Society, 2008: 1-6.
- [2] Wang K M, Li X S, Wan X S, An analysis of 353 students with mental disorders hospitalized for the first time. *Anhui Med*, 2007, 28 (4): 36-337.
- [3] Thomsen PH, Moeller, DehlholmB, et al. Manic depressive psychosis in children younger than 15 years: a register based investigation of 39 cases in Denmark [J]. *Psychiatry Scand*, 1992, 85: 401.
- [4] Hao Wei, Psychiatry [M]. 5th Ed. Beijing: People's Medical Publishing House, 2004: 125.
- [5] Huang Y X, Xu Z Q, Liu Y D, et al. Discussion on the compliance of health education and maintenance treatment in schizophrenic patients [J] *Clinical Psychiatry*, 2003, 13: 372.
- [6] Huang H L. Epidemiology and related factors of mental disorders in children and adolescents [J]. *China's health industry*, 2017, 14 (24): 4-5.
- [7] Wang M, Wang L, He H Y: Relationship between mental health and parenting style of middle school students in Beihai City [J] *Journal of Modern Integrated Traditional and Western Medicine*, 2011, 20(14): 1691-1693, 1757.
- [8] Chen Leiyin, Luo Xuerong, Wei Zhen, et al. Parenting style, source of control in children's education and characteristics of family function in children with oppositional defiant disorder (I) *Chinese Clinical Psychology Naizhi* 211.19(2): 209-211.
- [9] Pang Rong, Yang Kaibo, Peng GUI, Peng Furong. Prevalence and influencing factors of mental disorders among adolescents in Panzhihua City [J]. *Journal of Preventive Medicine Information*, 2020, 36(08): 993-997.
- [10] Yang Shijie *Pharmacology* [M] Beijing People's Health Publishing House, 2010.8.
- [11] Li Le, *Pharmacology*, Zhejiang University Press, April 2010, First Edition.
- [12] Ge M. Gui. A review of experimental studies on sensory deprivation. *Anhui Normal University Journal*.

- [13] Su Y, Hu Pecheng. The origin of floatation therapy and the current state of research. Chinese Journal of Clinical Psychology.