

## Review of research on early-onset depression

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**Abstract:** Early-onset depression severely affects the growth of children and adolescents and disrupts normal family life and society. There is a big difference between early-onset depression and adult depression, which is reflected in the onset characteristics, drug treatment, and neurological response. Early-onset depression is caused by a combination of social, family, and individual factors. The effective way to treat early-onset depression is to establish a model to improve the brain mechanism of early-onset depression, develop effective drug treatment, psychological intervention technology, and prevent early-onset depression. The method is to build a safe and close family relationship, harmonious and healthy Living atmosphere, through the promotion of early-onset depression, improve people's cognitive level.

### 1. Introduction

Adolescence is an important node in life between childhood and adulthood. Adolescents suffer from many psychological problems during adolescence. The main factor is depression. According to reports, the number of teenagers with different degrees of depression symptoms is 20% -30% [1] [2]. Some studies have shown that the incidence of depression increases significantly during childhood to adolescence, especially after puberty. The incidence of depression is about 0.4% -2.5% in childhood and about 8.3% in adolescence. Early-onset depression is called depression in children (including childhood and adolescents), and childhood is from 6-12 years old, and adolescents are 13-18 years old. Because early-onset depression severely affects the normal development of psychosocial function in children and adolescents, and may cause lifelong damage. Therefore, this article focuses on Early-onset Depression and discusses the characteristics, influencing factors, drug treatment, intervention and prevention of early-onset depression.

### 2. Characteristics of early-onset depression

Clinically, the symptoms and course of early-onset depression are more severe than those of adult depression. The onset period is longer, the frequency is more, the recurrence rate and the disability rate are higher, and the course of chronic disease is also relatively higher. [7] [8]. Studies have shown that the risk of early onset depression recurrence is four times higher than that of adult depression [9] : within two years of the first onset, about 45% of early onset depression relapses. Within five years of the first episode, 70 percent of patients relapsed. [10] [11] From the clinical manifestations, the symptoms of early-onset depression are more serious than adult depression, with longer onset period, more episodes, higher recurrence rate and disability rate, and higher chronic course of disease. According to the study, the risk of recurrence of early-onset depression is five times higher than the risk of recurrence of depression in adulthood. Among the patients with early-onset depression, about 45% had a relapse within two years of the first onset, about 70% had a relapse within five years of the first onset, and about 50% of the patients might delay the onset into adulthood. Relevant statistical results also proved that about 50% of the adult patients with depression had an early onset of depression. [12] Compared with adult depression, the co-morbidity rate of early-onset depression and other psychological and behavioral diseases is higher, with more than 90% of severe patients accompanied by other types of psychological and behavioral disorders.

Common psychological and behavioral disorders include anxiety, disruptive behavior or substance abuse. According to statistics, the co-occurrence rate of early-onset depression and anxiety is about 70%, 25% of patients with adhd, aggressive behavior and other behavioral diseases, alcohol and drug abuse is also a major risk for such patients. Among those with early-onset depression, about 31.7% develop bipolar depression, a significantly higher rate than in adults. About 3 percent of adults had a transition from depression to psychotic depression, compared with 28 percent of adolescents. [14][15] in addition, early-onset depression is a high risk factor for suicide. Follow-up studies show that 5 to 10 percent of adolescents with major depression attempt suicide within 15 years of their first episode, and 3 to 7 percent attempt suicide within 10 to 20 years of their first episode. [16] it can be seen that early-onset depression seriously harms the growth of adolescents.

### 3. Factors influencing early onset depressionMany

Scholars have studied the influencing factors of early-onset depression. In this paper, the influencing factors are summarized as shown in figure 1: social factors, family factors and individuals themselves. The three factors are discussed in detail.

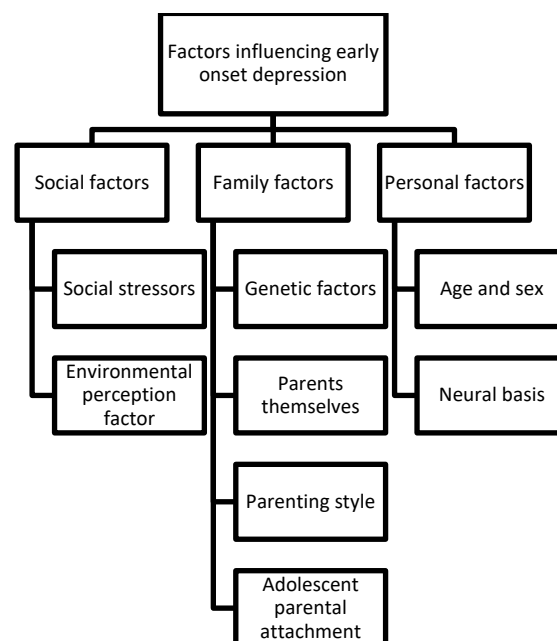


Fig 1. Influencing factors of early-onset depression

Social stress and environmental perception are two aspects of social factors. Adolescence is a critical stage in the development of social skills, can produce a variety of chronic social stress model, such as isolation, position change, community relations conflict, these patterns can affect behavior, so as to induce depression, some studies have explored the childhood and adolescence from chronic stress behavior and physiological reaction and the influence of the characteristic, and the use of adult rats and juvenile rat experiment. Through the experiment, it can be concluded that the stress stimulation sensitivity of juvenile rats is higher than that of adult rats, and the stress response intensity of juvenile rats is higher and the reaction time is longer. Moreover, the depression and anxiety behaviors of female rats were higher than that of male rats. In addition, among the environmental perception factors, interpersonal theory believes that perceived hostility is an important factor in the generation of depression.

Among the family factors, genetic factors, parental age, education, whether the parents suffer from depression, and parents' family education methods to their children are influencing factors for the occurrence of early-onset depression. Among genetic factors, age affects the onset of early-onset depression. Among those with early-onset depression, genetic factors account for about 79 percent of

the cases, the twin studies show. About twice the rate of first-episode depression in adults. In addition, the age at which parents give birth has an effect on their children's depression. The study found that the age at which the first child was born and the age at which the mother gave birth were also linked to earlier onset of depression. The early birth of a first child can be disruptive to the transition process of adolescence, with the long-term result that it can affect emotional well-being and lead to depression. The prevalence of early-onset depression in children born to mothers before the age of 23 is higher than in children born after the age of 23. Women in their 30s have the lowest incidence of having children. [17]. Parents, low level of education, lack of social support (including support from parents, teachers and peers) also led to an increased risk of depression [18] parents factor: a large number of studies have shown that if the child's mother had suffered from depression, so children are more likely to have behavior problems and attention deficit, also increases the risk of early-onset depression. [19] the study also found a significant correlation between early-onset depression and family social status, parental conflict, marital discord and family life events. It is believed that in the parenting style of parents to their children, the negative interaction mode between parents and children usually causes depression [20]. According to the view of interpersonal science, if a person lacks intimate relationship, it may reduce the ability to maintain intimate relationship and increase the incidence of early-onset depression [21]. Poor family interaction patterns also contribute to early onset of depression. Many scholars have focused on the role of adolescent parental attachment, psychological quality and depression : (1) adolescent parental attachment is positively correlated with psychological quality, negatively correlated with depression, and negatively correlated with psychological quality and depression. (2) psychological quality plays a partial mediating role between father attachment and depression, while psychological quality plays a complete mediating role between mother attachment and depression. (3) paternal attachment was a stronger predictor of depression than maternal attachment. It can be seen that adolescent parental attachment is the basic way to trigger and solve early-onset depression.

Among individual factors, changes in the development of the nervous system during childhood and adolescence may be involved in the pathogenesis of early onset depression, especially changes in the structure and function of the monoaminergic neurotransmitter system are closely related to the physiology and drug treatment response of early onset depression. In adults, gender is an influential factor for early-onset depression, with women being about twice as likely as men [22]. Among adolescents, age is a significant factor, with symptoms of early-onset depression showing prominently during adolescence (13-17 years old), and the incidence of the disease in boys and girls between the ages of 10-19 showing an increasing trend, with no significant gender difference.

#### **4. Intervention and drug treatment of early depression**

Understanding the neurophysiological mechanism of early onset depression is the basis of developing specific and effective therapeutic drugs. Clinical studies have found differences in symptoms, neurophysiological and drug responses between early-onset depression and adult depression, but there has been little progress in understanding the brain mechanisms that cause these differences. A series of animal models are widely used in the physiological mechanism of early-onset depression research, commonly used animal models of depression and stress include: Learned helplessness (Learned helplessness, LH) model, behavioral despair (behavioral despair, BD) model (including the Forced Swimming Test (Forced Swimming Test, FST), and rat Tail Suspension Test (Tail Suspension Test, TST)) the swimming test-induced despair behaviors and learned helplessness behaviors significantly increase and Chronicmildstress (CMS) model [25]. Due to the particularity of neurophysiology and behavior in childhood and adolescence, more experiments are needed to establish more natural and age-appropriate animal models of early-onset depression.

Treating adolescent depression is similar to treating adult depression. Clinical workers can use a variety of methods, including the use of antidepressant biotherapy, to focus on changing the amount of biochemical substances in the brain; The current clinical commonly used antidepressants have tricyclic antidepressants (tricyclic antidepressants, TCA), monoamine oxidase inhibitors

(monoamine oxidase inhibitors, MAOI), Serotonin heavy taken from system of antimicrobial agent (specific 5 - hydroxytryptaminereuptake inhibitors, SSRI) and norepinephrine heavy uptake inhibitor (specific norepinephrine reuptake inhibitors, SNRI), etc. These antidepressants enhance the availability of monoamine transmitters by blocking the reuptake of monoamine transmitters, inhibiting their intracellular synthesis, releasing or blocking the inhibitory regulation of presynaptic self-receptors, and play a therapeutic role. Of these, only some ssris, such as fluoxetine, sertraline and citalopram, have a clear effect on early-onset depression. Other types of drugs have little or no therapeutic effect [23]. Fluoxetine is currently the only fda-approved drug for depressed patients under the age of 18 [24]. Visible, the drug that can treat depression of early hair is less.

## 5. Summary

Adolescent depression affects the development of children and adolescents and is more destructive than adult depression. Early onset depression is affected by many factors, and a large number of studies have provided a lot of clues for early prevention, early intervention, and later treatment and correction. In the future to establish conforms to children and adolescents behavior and physiological characteristics of early-onset depression animal models, and the tracking study of early-onset depression may be a focus, it will help people to elucidate the physiological mechanism of depression disease, targeted the development of more effective drug treatment of early-onset depression and psychological behavior intervention technique. Psychotherapy can help patients understand the root causes of depression, improve coping skills and change cognition. Attaches great importance to the family therapy, change the family relationship mode, establishing safety attachment relations close parents, attaches great importance to family education and interaction, establish a good atmosphere and environment, family life will be more profound influence on adolescents' mental health, cultivate teenagers healthy psychological quality, can reduce the risk of suppression, in social aspects: through to the early onset of depression knowledge popularization, can enable people to correct cognition and understanding of early-onset depression, and be positive to accept when perceive their emotions and actively prevent the happening of the depression. Schools can regularly carry out mental health promotion activities to let students know that depression and anxiety are normal emotions, while depressive symptoms and anxiety symptoms indicate the potential occurrence of mental illness, so as to communicate and prevent. Also can popularize the related knowledge to the parents regularly, achieves inside and outside the school common attention, common prevention.

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