

Chronic Stress in Adolescents: Sources, Influencing factors and Interventions

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Keywords: adolescent, chronic stress, academic stress, social stress

Abstracts: Adolescents are in a special stage with the rapid development of both physical and mental. In this stage, adolescents are inevitably faced with various stressors, especially some long-standing chronic stress, which will have a great impact on their health. It is important to pay attention to the sources of chronic stress and the related physiological and mental health problems the chronic stress caused in adolescents. This paper analyzes the chronic stressors that adolescents are most likely to face, that is, academic stress and social stress, and summarizes the effects of these stress on physical and mental health. Adolescents are prone to psychological symptoms under chronic stress, and even their physical health will be damaged. Based on this, some studies have tried to use different methods to intervene, which might play a positive role in adolescents' mental health.

1. Foreword

Stress response refers to the non-specific response of the body to various factors acting on the body. The stress system in the human body will affect the neuroendocrine system due to different chronic stressors or acute events, and induce the occurrence of stress response [1]. Adolescents are in a period of rapid physical and psychological development, during which they are extremely sensitive to stress events. But inevitably, this group often faces various stressors in daily life, including not only acute stress and acute stress response caused by some unexpected events, but also non-normative major life events, such as unfortunate occurrence of natural disasters and divorce of parents [2-3], and some normative/chronic stressors, such as the pressure of academic competition and social needs. Compared with acute stress events, a larger proportion of adolescents suffer from more common chronic stress and chronic stress. Recent surveys show that it is not just adults who suffer from long-term stress. In Sweden, adolescent stress and serious stress-related health problems have increased dramatically in recent years. In the past 20 years, the number of 16-year-olds who reported stress, fatigue, psychosomatic symptoms and mental and physical stress has been steadily increasing, indicating that the prevalence and threat of chronic stress among young people and adolescents are increasing [4-5]. It is an important task to study the sources of chronic stress among adolescents and the related physiological and mental health problems, because it will provide insight into the possible goals of preventive intervention.

2. Academic stress in adolescents

School is the main activity place for adolescents, and learning is the most important task for every teenager. For adolescents, their performance and academic achievements in school have been paid attention to in many aspects, and academic success is the most important factor affecting their psychological and even physical health. Academic stress is a subjective feeling, which comes from being unable to adapt to one's own studies, thus subjectively producing a state of sorrow and anxiety [6-7]. Academic stress is the most common source of chronic stress among adolescents, which is caused by many factors, including parents, teachers and adolescents themselves [8].

In the eastern culture, due to the influence of traditional Confucianism, education has been highly valued. For adolescents in eastern countries, academic achievement is regarded as the most important way to enter famous schools, earn money and finally create outstanding careers. Parents in eastern countries usually have certain academic achievement expectations for adolescents. Parents have different expectations for their children when they grow up in different family backgrounds. Some parents are eager for their children to have outstanding achievements and academic status in an instant. In China, this phenomenon will be called unrealistic 'looking for success'. Adolescents often set some difficult or impossible goals for themselves in their parents' earnest thoughts, and they are eager to realize their parents' great needs and expectations, thus bearing great pressure and even causing bad anxiety. It is found that compared with western students who have experienced less academic pressure, Chinese students study harder, consider more aspects of examinations, and even have more anxiety. The reason is that Chinese students have a stronger sense of responsibility towards their parents. They have higher academic expectations and stronger achievement orientation, and they try their best to avoid the negative reaction of their parents to their failure [10-12]. Some research results show that pursuing excellent academic performance and studying harder will bring some good results, but excessive academic pressure will lead to obvious psychological problems [13]. A Korean study found that the closer the parent-child relationship is, the greater the academic stress intensity of adolescents [14]. When adolescents fail to fulfill the academic expectations of important others, especially their parents, they will be ashamed and afraid of losing the trust and support of their families. In addition, some studies have shown that parents' parenting style is related to the academic pressure perceived by adolescents, and democratic parenting style has a significant negative correlation with the academic pressure level [15]. It is suggested that parents adopt democratic education methods to encourage and comfort adolescents.

Adolescents' academic pressure is also related to self-expectation [16]. Usually, adolescents will exert pressure on themselves in the campus which is full of peer competition pressure, and ask themselves to excel in their studies. This competitive pressure among peers emphasizes that students should avoid humiliating themselves, but this self-expectation becomes a further source of academic pressure when it cannot be fully realized [17]. In addition to peers, teachers, as one of the important figures that adolescents need to get along with for a long time in the school environment, have great influence on the academic pressure perceived by adolescents [18]. The position between teachers and students and the attitude of communication have a direct impact on students' academic pressure. In the classroom, teachers' teaching will affect students' learning results to varying degrees, which is related to different students' knowledge reserves and absorption levels. It will also lead to teachers' diverse attitudes towards students, including praise, acceptance or indifference, which will affect students' academic pressure and academic achievements, and the psychological burden of students' studies will gradually increase in the long run, for example, they are afraid of losing their achievements and losing face, fearing to live up to teachers' expectations, and fearing that they have shortcomings in knowledge.

3. Social stress in adolescents

Adolescents' social relationship is another most common stressor in their daily life. It is very important for adolescents. Peer support is the foundation of adolescents' identity development and self-status. During puberty, the time spent learning to get along with peers increases, and the psychological and emotional dependence on peers also increases. Therefore, the good or bad peer relationship is an important factor that affects the physical and mental health of adolescents in adolescence [19]. In society and school, adolescents pay special attention to their peer relationship and their position among peers. Adolescents tend to establish partnerships with adolescents with higher status, expecting that this will bring them unexpected benefits and even convenience in the learning environment. However, adolescents who refuse to associate with their peers, lack peer support and lack friends are regarded as individuals threatening their social status. Then they are rejected by their peers. If adolescents suffer from peer injury for a certain period of time, that is, they are repeatedly harassed or humiliated and ridiculed by peers, which means that this is a long-term situation [20]. They are often unable to actively improve their relationships with friends or larger groups. If the peer relationship pressure caused by this experience of injury lasts too long, adolescents may respond to this pressure more passively. Moreover, adolescents who suffer from this chronic stress are more likely to have relationship aggression [21], trying to hurt the stressors that cause stress to themselves, that is, other unfriendly companions. Therefore, among adolescents, adjusting peer relationship and the mode of getting along with peers may reduce a large part of chronic stressors, and schools should pay attention to this aspect.

4. Effects of chronic stress on physiological and psychological characteristics

The persistent existence of chronic stress may lead to overreaction of human stress system, which leads to accelerated release of CRH hormone and secretion of glucocorticoid in hypothalamus, thus promoting growth, metabolism, gastrointestinal function and other diseases [1,22]. Björntorp(2001) thought that chronic stress and cortisol secretion caused by chronic stress led to an increase in food intake, which affected and destroyed the balanced regulation of human food intake, which also increased the probability of excessive food intake and long-term increase in fat [23]. Therefore, chronic stress may become a potential factor for adolescent obesity and overweight [24-26]. Chronic stress can also affect sleep. Sleep is a good medicine for relieving stress. When the body goes to sleep, it can reduce the energy wear caused by metabolism and energy consumption. When studying the chronic stress of adolescents, adolescents who suffer from chronic stress for a long time complain that they are too tired during the day and have sleep disorders at night (such as insomnia, sudden awakening during sleep, etc.). To put it another way, chronic stress experience will interfere with adolescents' sleep quality and their ability to get enough sleep [27-28]. Sleep disorder and lack of sleep affect adolescents' learning status and daily life, which in turn leads to adolescents' persistent stress experience.

In addition to the impact on physical health, complaints related to chronic stress on mental health among adolescents are very common and have been increasing in the past decades. Studies have shown that chronic stress is closely related to mental health problems such as anxiety and depression, and adolescents are more likely to have anxiety and depression symptoms under chronic stress [29]. If adolescents are under long-term academic pressure, they are prone to worry. Worry is a repeated negative thinking mode, which is easy to further induce or aggravate anxiety symptoms, and then trigger stress response. Another common emotional state is depression, which is very common in adolescents' growing environment. Under many chronic pressures, such as academic, social and parents' expectations, adolescents are more prone to depression, mood disorder, mental decadence and irritability. In general depression, persistent low spirits are the main manifestation of adolescents,

with persistent pessimism, depression and decreased interest. Thinking will also be blocked, even unwilling to show the heart, and even avoid normal social interaction, resulting in a vicious circle. Moreover, anxiety and depression can also cause physical symptoms, that is to say, chronic stress has long-term adverse effects on adolescents' physical and mental health.

5. Intervention methods on chronic stress

School is the most important natural environment in adolescence, and most of the chronic stressors that students feel are related to school. At present, some intervention projects have been attempted in the school environment, aiming at improving adolescents' social and emotional functions, reducing adolescents' pressure feeling and enhancing their happiness, improving adolescents' overall self-esteem and helping them maintain a correct sense of self-worth [30]. Most school-based intervention projects include more than one intervention component and intervention focus. For example, they usually include some relaxation skills, problem solving skills and emotional coping skills, etc. Different combinations of these contents may affect the intervention effect, but recent meta-analysis research shows that school-based intervention research is effective in reducing students' pressure perception in specific student samples [31]. In addition to the comprehensive intervention in the school environment, mindfulness training has been found to have a positive effect on intervention when adolescents face the pressure of self-expectation generated by academic examinations [32]. Mindfulness also means teaching adolescents to give themselves a positive and optimistic time to relax after studying. And through certain psychological hints, they can relax their academic tension and concentrate on the determination and affirmation of their own ideas.

Generally speaking, the sensitive characteristics of adolescents make them more prone to chronic stress and related adverse effects. In the current situation of changeable environment and individual psychology, it is challenging to formulate an intervention plan that suits the individual needs of adolescents. This paper analyzes the possible chronic stressors of adolescents, hoping that the future intervention programs for adolescents' chronic stress can achieve better results.

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