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Letter

Reply to: Stress during childhood and adolescence: How to combat?

To the Editor:

We thank Professor Srijit Das for his letter to the Editor entitled "Stress during childhood and adolescence: how to combat" [1] regarding our recent article "Metabolic consequences of stress during childhood and adolescence" [2] published in Metabolism. Professor Das shares his thoughts on the complex nature of pediatric stress, and expands the content of the article, by proposing intervention and prevention strategies to combat stress.

We agree with the author that prevention is the best strategy, and that the first step to accomplish this is to recognize physical and emotional stress in children, as well as the conditions in which stress develops [3]. As stress is an integral part of human life and people experience physical and psychological stress many times during their lifetime, the nature and degree of the stressor and the development of coping strategies are extremely important. Furthermore, one needs to distinguish the damaging distress from the necessary and advantageous eustress. Normally, central and peripheral molecular mediators of stress are activated in response to real or perceived stressors and help re-establish homeostasis [4]. It is severe and chronic stress that produces a variety of psychological and physical adverse effects. Especially in the young, distress can be quite detrimental, as brain regions vulnerable to stress, such as the amygdala or the hippocampus, are "programmed" to overreact to stressors, producing an anxiety-prone phenotype [5]. Thus, early life experiences are particularly important in determining how a person will respond to adversity over the lifespan.

Monitoring of stress hormones, as Professor Das notes, might be of great importance in the identification, assessment, prognosis and treatment of stress-related diseases. Disturbances in stress hormone secretion are found in pediatric obesity [6], as well as in a variety of anxiety disorders during childhood [7-9]. Increased stress hormones were also found in healthy children that later developed posttraumatic stress disorder (PTSD), providing a potential predictive value of these biomarkers [8].

In addition, Prof Das discusses the roles of nutrition and oxidative stress in the young. Nutrition is an environmental parameter with major effects on brain development and metabolic health, whereas lifelong insufficiency in n-3 PUFA influences emotional behavior and the stress response [10]. A diet rich in omega-3 fatty acids might produce a decrease in the activation of the stress system acting as an important additional mechanism in the management of stress [10]. Oxidative stress, on the other hand, has damaging effects that can be initiated during childhood. Enhanced oxidative stress combined with reduced antioxidant capacity has been found in obese girls with the metabolic syndrome [11].

In general, preventive interventions that promote healthy development, especially in early life, are more cost-effective than later treatment of the physical and mental problems that arise from stressful childhood experiences. Psychosocial interventions, such as social support of children victims of childhood abuse [12] and enhancing the home environment of expectant mothers [13], demonstrate that anxiety, depression and related psychological conditions can be improved, reducing the efforts and costs of treating more complicated health problems later in life. In addition to social support at home, school interventions have also been shown effective, especially in pupils of disadvantaged schools, where common stressors and risk factors for mental health problems, such as parental depression, violence, and job loss, are prevalent [14]. A number of studies have also shown the positive effect of school programs targeting stress management in reducing symptoms of stress and enhancing coping skills [15].

In conclusion, clinicians and other health care providers, such as psychologists and dieticians, as well as community leaders that decide on the allocation of resources, should all contribute to the identification and management of early life stress as a strategy of utmost importance for the wellbeing of individuals and societies.

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Conflict of interest

There is no conflict of interest.

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