**Storming into Adulthood**

Are adolescents really emotional volcanoes waiting to explode?

Dr. Romeo Vitelli, PhD. *Psychology Today*. Sep 30, 2013

*“To be normal during the adolescent period is by itself abnormal.”* Anna [Freud](https://www.psychologytoday.com/basics/freudian-psychology)

Ever since G. Stanley Hall first described the [“storm and stress](http://tlc.howstuffworks.com/family/storm-and-stress.htm)” seen in most adolescents, the perception of young people as emotional volcanoes ready to explode has taken on a life of its own.  In his [1904 book on adolescence](http://www.amazon.com/Adolescence-Psychology-Physiology-Anthropology-ebook/dp/B004R9PLR2/ref=sr_1_1?ie=UTF8&qid=1379855935&sr=8-1&keywords=stanley+hall+adolescence), Hall suggested that storm and [stress](https://www.psychologytoday.com/basics/stress) was an inevitable part of adolescent development.  His storm and stress hypothesis refers to the decreased [self-control](https://www.psychologytoday.com/basics/self-control) seen in adolescents (the “storm” part of the hypothesis) versus the increased sensitivity in adolescents to various stimuli around them (the “stress”). For Hall, storm and stress affected adolescent behaviour in three basic ways:

* Conflict with [parents](https://www.psychologytoday.com/basics/parenting)
* Mood disruptions
* Risky behaviour

Though not all adolescents necessarily go through the storm and stress stage of development, Hall’s ideas about [adolescence](https://www.psychologytoday.com/basics/adolescence) were fairly popular for their time. In the decades that followed, researchers and academics have tried to place their own spin on Hall’s developmental hypothesis and whether adolescent tension was due to biological factors or upbringing.

But not all researchers agreed with Hall. In his 1964 paper, [*The Stormy Decade: Fact or Fiction*?](http://www.uky.edu/~eushe2/Bandura/Bandura1964Stormy.pdf), Albert Bandura reported that his own research showed that most adolescents do not, in fact, consider their adolescent years as particularly stormy. Bandura also pointed out that the mass media rarely presented adolescents as being anything *but* stormy which created a skewed view of [child development](https://www.psychologytoday.com/basics/child-development). He concluded that expecting adolescence to be stormy often becomes a self-fulfilling prophecy.

As Bandura wrote, “I have often been struck by the fact that most parents, who are experiencing positive and rewarding relationships with their pre-adolescent children are, nevertheless, waiting apprehensively and bracing themselves for the stormy adolescent period.  Such vigilance can very easily create a small turbulence at least.  When the prophesied storm fails to materialize, many parents begin to entertain doubts about the normality of their youngster’s social development.” Though Bandura carefully warned that adolescence was not necessarily stress-free, any “storm” developing as children grow older usually arises from problems that were already present in early childhood.

Despite attempts by Bandura and other developmental theorists to challenge the storm and stress hypothesis, the debate that G. Stanley Hall started still continues after nearly a century.   But are the researchers asking the right questions?  A [new review published in *American Psychologist*](http://psycnet.apa.org/journals/amp/68/6/444/) suggests the all-or-nothing storm and stress view of adolescence may prevent us from really [understanding](https://www.psychologytoday.com/basics/empathy) how adolescents develop and change. Written by Tom Hollenstein and Jessica P. Lougheed of Queen’s University in Kingston, Ontario, the article proposes that the fundamental question may not be *whether*storm and stress occurs in every adolescent. Instead, we should be asking *when* do these changes occur and *how*are these changes expressed?

According to the authors, rather than viewing storm and stress as being both inevitable and rooted in biology, it is probably more accurate to recognize six basic premises about adolescent biology:

1. **The biological changes of adolescence are inevitable and ubiquitous**: Virtually all adolescents go through the same physiological changes. That includes neurochemical changes with gonadal [hormones](https://www.psychologytoday.com/basics/hormones) such as [testosterone](https://www.psychologytoday.com/basics/testosterone) and estradiol rising to adult levels by late adolescence.
2. **Adolescent biological changes drive various mechanisms of adolescent behaviour:** While behaviour isn’t determined by biology, changes in the hormone levels can affect behaviour both directly and indirectly.  For adolescent male in particular, rising testosterone levels can lead to increased aggression which become strongest when faced with social threats, i.e., loss of status. Along with hormonal changes, there are also neurological changes affecting the limbic system and prefrontal cortex in the brain controlling social and emotional functioning. This can lead to greater impulsivity and sensitivity.
3. **Adolescent biological changes are shaped by environmental influence:** Biology and [environment](https://www.psychologytoday.com/basics/environment) both play a role in how adolescents develop socially. In fact, recent evidence has demonstrated that how certain [genes](https://www.psychologytoday.com/basics/genetics) express themselves largely depends on environmental factors. As one example, the [5HT transporter gene](http://en.wikipedia.org/wiki/Serotonin_transporter) regulating serotonin levels can be altered depending on individual exposure to stress, physical or emotional abuse, or [substance abuse](https://www.psychologytoday.com/basics/addiction). Early childhood neglect or disruptive family history can also impact how adolescents develop into adults.  Our experiences as adolescents shape [neural](https://www.psychologytoday.com/basics/neuroscience) pathways with [synaptic “pruning](http://en.wikipedia.org/wiki/Synaptic_pruning)” during early adulthood changing the brain into the more efficient neurological structure found in adults.
4. **Individual differences in adolescent emotional behaviour changes are domain specific and vary in intensity:** Every emotionally challenging event an adolescent faces is going to involve some form of coping strategy, no matter how effective or ineffective. Peer rejection is one example of an event which can either be treated as a learning experience or else can have long-term damage. For each emotionally challenging event, there is going to be a way of responding but there are also going to be large individual differences in *how*adolescents respond. For that reason, predicting what an adolescent will do when faced with a new challenge can be extremely difficult.
5. **There are individual differences in the age of onset and duration of periods of adolescent change:** Adolescents can vary widely in how rapidly their bodies mature.  While 90-95 percent of all adolescent girls have their first menses between the age of eleven to fifteen, there are always outliers. Among individual adolescents in the same age group, body development can vary by as much as five years. Boys and girls who mature earlier can face greater pressures to engage in more adult-oriented activities such as [sexuality](https://www.psychologytoday.com/basics/sex), most specifically from their age peers. This difference in biological maturity does not necessarily match emotional maturity.  All of which could lead to greater interpersonal conflict, mood disruption, and an increased tendency to take risks as adolescents grow older.
6. **Individual differences in the duration and intensity in emotional stimuli are functionally moderated by**[**emotion regulation**](https://www.psychologytoday.com/basics/emotion-regulation)**skills:** We all learn through experience how to regulate our emotions though the biological mechanisms that control emotional arousal are hardwired into our bodies.  For adolescents who become increasingly aware of their changing bodies, there can be a considerable gap between their capacity for emotional arousal and their ability to control that arousal. There doesn’t appear to be any fixed time frame involved however and adolescents vary widely in their ability to control their changing emotions.

Based on the six premises they put forward, Hollenstein and Lougheed suggest that the traditional storm and stress hypothesis of adolescence is likely obsolete. As an alternative, they proposed what they refer to as the **4T approach**to understanding how adolescents grow and develop. This approach involves integrating four different elements:

* **Typicality:** There are normal processes at work as children move into adolescence.  Until recently, previous research looking into adolescents tended to focus on problem behaviours and largely ignored the natural development seen in healthy children. While studying individual differences in how adolescents develop has been difficult up to now, the development of better research tools and sophisticated technology is changing the focus on adolescence research.
* **Temperament:** While there are some aspects of an adolescent’s [personality](https://www.psychologytoday.com/basics/personality) that appear innate instead of being based on experience, a child’s [temperament](http://en.wikipedia.org/wiki/Temperament) can change drastically at different points in that child’s life. That includes changes in sensitivity, emotional regulation, and the intensity of a child’s responses to new problems or challenges that arise over time.
* **Transactions:** We are continually making transactions between our body’s biology and the outside world.  Stressful situations are going to change our personal biology in meaningful ways including changes to the central and autonomic nervous system, the hypothalamus and pituitary glands, and the body’s hormones, among other things. The more stressed we become, the greater the likelihood that our bodies will be overwhelmed by the changes that occur.  And those changes are going to affect how we deal with the world around us. Adolescents who are less experienced in dealing with stress are going to react in ways that can either aggravate or defuse the stressful situations.  It’s how these transactions occur between biology and environment that is likely key to understanding adolescent behaviour.
* **Timing:** Not every adolescent is going to develop at the same rate. While we can chart the development of infants and small children to some extent, the rate at which adolescents mature to becoming adults is harder to measure.  Chronological age is not necessarily a good measure of an adolescent’s emotional maturity although society tends to set arbitrary age standards (e.g., minimum age for a driver’s license, [drinking](https://www.psychologytoday.com/conditions/alcohol-use-disorder-abusedependence), sexuality, voting). Though some societies regard children reaching puberty as full adults, determining whether an adolescent is ready for adult responsibilities is a difficult question to answer. The difficulty in deciding when adolescence ends and adulthood begins is reflected by recent suggestions that [adults as old as twenty-five](http://www.dailymail.co.uk/health/article-2430573/An-adult-18-Not-Adolescence-ends-25-prevent-young-people-getting-inferiority-complex.html) might more properly be considered adolescents to prevent children being “rushed” through childhood.

So is adolescence stormy or not?  There is really no other stage in our normal development that places so many demands on us to “grow up” and the biological changes adolescents undergo are very real.  On the other hand, automatically assuming that adolescents *must* be stormy as they become adults seems to be overly simplistic as well.   According to Hollenstein and Lougheed, the 4T approach represents a better way of understanding how adolescents develop and change over time.

Plenty of stress but not necessarily a storm.

**Questions:**

Answer in your notes. It is suggested that you write the questions down as well. Please return article package.

1. In your own words, describe Hall’s ‘storm and stress’ theory.
2. Are the 3 factors he states for the ‘storm and stress’ of adolescent behaviour still valid 100+ years after the original writing? Which one would you suggest is the most prevalent?
3. Are there other factors that need to be added or are more relevant now?
4. What is your assessment of Bandura’s response to the ‘storm and stress’ theory? How do the Principles of Behaviour (from your note) factor in?
5. How does Hollenstein and Lougheed’s 4th premise connect to the ‘triggers for behaviour’ idea?
6. Does their 5th premise support or contradict Hall’s original 3 factors, especially regarding risky behaviour?
7. With specific reference to each of the 4T’s, are they more relevant in explaining behaviour among today’s adolescents than Hall’s original theory? How so?
8. Which of the 4T’s do you think is most important in assessing your own behaviour and the behaviour of those around you? Explain.