Understanding the golden threads that connect the adolescent girl experience worldwide

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Over the past generation, our understanding of adolescence – and the context and life paths of adolescence itself – have changed dramatically. No longer do the majority of adolescent girls live in rural areas and no longer does infectious disease account for the majority of deaths. At the same time, we see shifts in biological development: the age of puberty is declining around the world, and we have a better understanding of how the brain grows through adolescence and into young adult years.

Most fundamentally, we now understand that adolescence creates a window of opportunity – a second chance– to ensure that young girls enter adulthood healthy, empowered and with the agency to achieve their full potential.

It is against this backdrop that a set of critical questions arise:

- Are there distinct stages of adolescence and what does this mean for adolescent development?
- Are there universal gender norms and scripts that manifest around the world, and what is context specific? What are the golden threads that connect the experiences of adolescent development worldwide?
- What protects adolescent girls at different ages and stages?

This paper explores these critical questions by bringing together the often disparate worlds of adolescent biological and cognitive science with international development research and practice. It provides a framework for understanding the three distinct stages of adolescent development (early, mid and late), with implications for practitioners on how and when we engage girls. It also navigates the issue of environment versus biological and cognitive development, suggesting that, in fact, some universal gender scripts – about what it means to be a girl – do exist.

While we fully acknowledge that adolescence is a critical time for both boys and girls, this paper primarily explores the experience of girls.
Adolescence is one of the most defining phases of a woman’s life

As girls transition into womanhood, they navigate new ways of relating to their world in the midst of substantial biological and physical changes. As part of the largest study of its kind on adolescence and gender norms, the Global Early Adolescent Study shows that girls are well aware of threats that did not exist when they were younger. Girls across the world, in Baltimore, Nairobi, Ghent, Assuit and Delhi, mention a heightened sense of differences between their current reality and that of their childhood: “I would love to go back to the childhood […] like safety and all that stuff, but it is too dangerous… more predators are looking for woman, like young ladies that [are] developed and that is what they are looking for so it is not that safe.” (Girl, Baltimore)

Developing in mid- through late adolescence, the prefrontal cortex is the centre for executive control: selective attention, planning and decision-making, response inhibition and response speed and accuracy. The prefrontal cortex has thus been called the “braking system of the brain.” When faced with a challenge, an early adolescent is likely to respond first and only subsequently think about what the options might have been. Conversely, the late adolescent is more likely to study the problem first and then act quickly after having planned her moves. Therefore, the late adolescent is more likely to exhibit executive control and in turn, planfulness; this is essential for long-term planning, such as contraceptive use.

What is puberty?
- The ability to have children
- A growth spurt that occurs in no other species
- The appearance of looking like an adult long before our brain lets us function like adults

This new-found self-awareness and sense of threat is happening concurrent with significant changes in adolescent girls’ emotional development. Emotions are the way we read and respond to other people’s intentions and behaviours. Emotions are processed in the part of the brain called the amygdala, which in turn affects the autonomic nervous system, regulating the physical ways we respond to emotions, such as a racing heart, sweaty palms and shaking hands. It is the amygdala, along with the limbic system, that also regulates the young person’s responses to both reward and punishments. These centres in the brain develop in early and mid-adolescence – before the prefrontal cortex, the part of the brain that regulates emotions as well as higher reasoning capacity, is fully developed. This helps to explain why adolescents are often seen as more emotional than children or adults; and for girls these emotional areas of the brain develop long before boys.

The “chemistry of love” also develops significantly during adolescence; two hormones – oxytocin and vasopressin – become particularly important during this time. Oxytocin, associated with mother/infant bonding and attraction to other people, rises in romantic relationships and also appears to be involved with reading social cues. Oxytocin is critical for bonding amongst females and vasopressin is critical amongst males. These two hormones might also be responsible for the sensations that occur when two people fall in love. The Global Early Adolescent Study data shows that girls, more than boys, tended to report romantic feelings. Girls in all cities indicated that they experienced peer pressure from other girls to engage in or avoid acting on romantic interests.

“[Girls] should wear proper clothes like salwar kameej which cover their body well. When they are small they can wear any clothes, but as girls grow up they have to wear covered clothes, talk in a certain manner.” (Girl, Delhi)

These cognitive, hormonal and emotional changes validate a reality described by many adolescents – that they experience more stress than children or adults. There are a number of interacting explanations that contribute to this:

- The world is less within an adolescents’ control; it is less predictable, and they feel that their futures are uncertain.
- Rapid social change makes their future less predictable.
- Adolescents experience a “delayed phase” sleep - they sleep later and wake up later than children. However, they do not have the possibility to work around their sleep patterns due to work and school obligations.
- Hormonal shifts contribute to higher baseline cortisol levels – the stress hormone that makes your hands shake and your heart flutter.

Girls are well aware of threats that did not exist when they were younger. They commonly experience more stress than children or adults.
Adolescence takes girls through a journey of three distinct stages

One of the most critical times of a woman’s life, adolescence involves three distinct stages: early (10-14 years), mid (15-17) and late (18-19).

Developmental Stages, Changes and Consequences

- Puberty completed
- Empathetic skills increase
- Decision-making capacity reaches adult levels, however, decisions tend to be short-term
- Increasing ability to regulate emotions
- Social support becomes increasingly important
- Less motivated by threats or punishment
- Increased risk-taking
- Rise in romantic interests
- Increased boredom/disengagement
- Change in sleep patterns (sleep later, wake later)
- Resistance to peer pressure reaches adult levels
- Greater susceptibility to depression
- Less influenced by fatigue and stress
- Improved impulse control

2 Based primarily on: Braams et. al., 2015; Crone et. al., 2012; Dahl, 2016; Harden et. al., 2015; Hauser et. al., 2014; Kenroot, 2010; Steinberg, 2014, Spear, 2012
Given what we know about these developmental stages, programmatic strategies would be more effective when they are clearly linked to priority issues in each adolescent stage. For example, in early adolescence it is important to help girls develop their decision-making skills, whereas interventions during mid-adolescence should focus on building their agency to make decisions. It is vital to focus on understanding and dealing with puberty and menstrual hygiene during early adolescence, while access to and understanding of contraception should be a priority in mid-adolescence. As girls transition into late adolescence, opportunities and skills to build economic empowerment assets are particularly critical.

**Girls 10-14**

**Changes**

- Puberty usually begins with the development of secondary sex characteristics. For girls, this includes: weight gain, breast development and growth spurt; menses occurs later.
- Increased sensitivity to rewards (compared with children or adults). Less sensitivity to punishment.
- Rise in romantic and sexual interests. Girls' interests precede boys'. Peer affirmation more rewarding than previously.
- Increased risk taking and novelty seeking.
- Increased use of brain stimulating substances (e.g. alcohol) seen in human and other animal adolescents (e.g. rats).
- Learning strategies change. Puberty is associated with increased boredom and increased disengagement.
- Adolescents develop “switching” capacity (or “cognitive flexibility”), the ability to switch between two concepts (sometimes mistakenly called multitasking).
- Changes in sleep pattern naturally occur with later sleep and waking times.

**Consequences**

- Girls are looking like mature women at younger ages and long before their brains fully mature.
- Adolescents are less motivated by threats and punishments than they were as children. Rewarding positive actions have greatest returns.
- Romantic interests and attractions create the same physical responses that stimulate the reward system of the brain. Results in “if it feels good do it” orientation.
- Adolescents learn best from incremental rewards; natural consequences, positive reinforcements.
- Alcohol, cocaine, and other substances are chemically similar to dopamine and the result is similar stimulation of the brain's reward system.
- Early development of limbic (reward) system makes social learning more stimulating. Exploratory learning is increasingly effective.
- Adolescents are becoming nimbler in their thinking. Activities that challenge that thinking (e.g. word games) are of more interest.
- Daytime sleepiness results in increased emotionality and decreased ability to concentrate. Minimizing sleep disturbances is increasingly important.
Girls 15-17

**Changes**

Puberty completed. Emotional regulation system begins to develop allowing for improved concentration, more rational decision making, less impulsivity, greater planfulness.

Empathetic skills increase, resistance to peer pressure develops, working memory improves, sensation-seeking declines, decision-making reaches adult capacity.

As decision-making reaches adult capacity, other factors influence it: past experience, pressure to decide quickly, more interest in immediate rather than long-term rewards, social gains (such as peer recognition), even when longer term consequences are negative.

With physical and brain maturation, there is a trend toward greater independence but concurrently there is a tension and price of moving away from family, peer affirmation (e.g. sense of isolation, depression).

**Consequences**

Girls are able to do better planning such as contraceptive use, that requires taking an action today to prevent something in the future from occurring.

Increasingly able to regulate emotions, decreasing distractions and allowing for better concentration and more rational decision-making.

While the “braking system” is maturing there is a strong influence of peer approval on behavior. Additionally, because the developing adolescent has limited capacity to project the future, decisions may be based on short-term rather than long-term consequences.

With greater cognitive capacity coupled with better control of emotions (prefrontal cortex development) the rewards of peer affirmation has less stimulatory effect on the reward system. However social support built on trust is increasingly important.

Girls 18-19

**Changes**

Greater susceptibility to depression. Depression is not just the consequence of gender based discrimination but also due to biological changes of developing a “braking system” on the emotional and reward centers of the brain.

Resistance to peer pressure by age 18 is comparable to adults of any age. Girls are better able to resist peer pressure than boys of the same age.

Improved impulse control, emotional regulation, less influenced by fatigue and stress.

**Consequences**

Social networks and reduction of social isolation become increasingly important for late adolescent girls as antidotes to depression.

The capacity of late adolescent girls to resist peer pressure is frequently seen as countercultural and conformity is rewarded.

Ability to make fully rational decisions if the contexts in which girls live support and encourage them.
And what about the boys?

Boys and girls experience puberty differently. For boys, most of early puberty occurs out of public sight, and growth spurts, voice change and acne occur relatively late. For girls, puberty progresses in a very dissimilar way. What do these different experiences look like?

<table>
<thead>
<tr>
<th>Age of puberty</th>
<th>Girls</th>
<th>Boys</th>
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<tbody>
<tr>
<td></td>
<td>Starts earlier (18-24 months)</td>
<td>Starts later</td>
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<tr>
<th>Development of sexual/romantic interests</th>
<th>Girls</th>
<th>Boys</th>
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<tbody>
<tr>
<td></td>
<td>Testosterone and oestrogen are important for both boys and girls.</td>
<td>Starts later</td>
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<td></td>
<td>Starts earlier</td>
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<tr>
<th>Engagement in risk taking</th>
<th>Girls</th>
<th>Boys</th>
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<tr>
<td></td>
<td>Less risk taking</td>
<td>More risk taking (testosterone as driver)</td>
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<th>Influence of peer pressure</th>
<th>Girls</th>
<th>Boys</th>
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<tr>
<td></td>
<td>Greater resistance (particularly in late adolescence)</td>
<td>More inclined</td>
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<tr>
<th>Brain development</th>
<th>Girls</th>
<th>Boys</th>
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<td></td>
<td>Greater inter-hemispheric connections (linking the left and right sides of the brain) and as a result, have better organizational skills, attention to and completion of tasks.</td>
<td>Boys have slightly larger brains on average than girls.</td>
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Gender norms and scripts around the world

Around the world, adolescent girls usually come of age in male-dominated societies that tend to convey gender-biased cultural values and stereotypes. These generally reinforce notions of male strength, competence and control while concurrently reinforcing female frailty, vulnerability and need for protection.

We know that gender inequalities have profound effects, not only for the developing adolescent but for adult women and men as well. For instance, an analysis by the World Bank (2001) showed that where gender inequality is high, so too is HIV prevalence. In South Africa, for example, the United Nations reported that gender inequality is a major driver of the HIV epidemic. Furthermore, in a separate study from 2009, the World Bank indicated that where discriminatory gender norms influence the workplace, gender inequality was the greatest single barrier to national economic development.

Gender norms are socially constructed and not biologically determined. While they are directly influenced by culture, common gender scripts exist across highly diverse countries. In other words, shared understanding of codes or social shortcuts prevail, influencing how men and women should act, what roles they should have and the value each holds. The largest international study of gender norms, attitudes and beliefs of adolescents, the Global Early Adolescent Study, interviewed nearly 300 adolescent girls from 15 countries. Drawing upon this data and the wider body of literature, this section explores the commonalities in the experiences of adolescent girls across the world.

What gender scripts are common across the world?

Both girls and boys tend to endorse a concept of femininity based on physical characteristics of beauty and attractiveness, propriety and passivity. Girls are frequently described as physically weak and vulnerable and subordinate to male authority. There is a strong sense that female sexuality should be suppressed rather than expressed. Female sexuality, when it is referenced at all, is commonly discussed in derogatory terms with labels such as ‘slut’ and ‘prostitute’.

There are strict penalties for those who challenge gender norms. Across all 15 countries, we heard that certain behaviours and activities were reserved for boys and others for girls. For example, in Shanghai, playing certain sports was considered to be ‘acting like a man’. In Ghent, girls explicitly selected friends based on how they behaved as a girl: “You know, sometimes, there are these girls that act like boys … aren’t boys much tougher and everything and some girls already act like that and I don’t like that so much.” (Girl, 11, Ghent)
Girls who do not conform to norms of beauty, appearance and heterosexual romance tend to be socially isolated and called names. Despite these restrictions, girls more commonly challenge gender inequities than boys. For example, a study in Nepal found that girls voiced strong opinions in favour of gender equality while concurrently acknowledging that this was not their reality. In Malawi, boys expressed support for gender equality as well as concurrently indicating their superiority to girls.  

Puberty signals a dramatic shift in girl-boy relationships. That is, as girls enter puberty, they are given the message to stay away from boys: “They will get you in trouble, they only want one thing and they are not to be trusted.” One 12-year-old girl in Delhi said, “I don’t make friends with boys as my parents asked me not to. They [boys] are dirty. They start teasing and doing certain things.”

Parents consistently appear to be more restrictive of their adolescent daughters’ freedom of movement and access to information than their sons. Even where they see their son at risk of injury or worse from violence, parents the world over are more concerned about their daughter’s emerging sexuality and what they see as her resulting vulnerability. One 11-year-old girl in Shanghai reflected on the different behavioural expectations for her compared to her brother: “I always cross my legs when having dinner. Then my dad patted on my leg and said I mustn’t do it outside. It’s not the thing a good girl should do. I asked him why he and my elder brother can do it but I can’t. He replied, “Because you are a girl.”

What drives the socialisation process of gender norms?

**Peers:** The most significant agent of socialization for girls is peers, far more so than for male participants. As one girl in Edinburgh mentioned: “How would you know how to behave and stuff? Copy other lasses [girls].” Peers who are one stage older tended to have the greatest influence on a girl or boy. As one girl from Baltimore mentioned: “Because I am in sixth grade, I look at the seventh graders... so that I will know what to do.”

**Media:** Both mass media and social media play an important role in communicating gendered expectations. Girls across the 15 sites discussed the role of TV, movies and books: “You can also see on TV they will tell you that a girl must be clean, kind and polite, pretty.” (Girl, 11, Kinshasa)

**Parents:** Parents, particularly mothers, are key drivers of socialisation prior to a girl or boy’s entrance into adolescence. Gender attitudes of parents might prescribe the division of chores between brothers and sisters, the amount of education a son and daughter will receive and the freedom of movement that each will have as they journey through adolescence.

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4 Ibid
What becomes evident, both from the literature and from the voices of girls themselves, is that there are many more channels urging conformity to stereotypic gender norms than there are suggesting an alternate, more equitable reality. Girls learn what it means to be a woman from parents, peers and media, probably in that order. However, given that both peers and parents are more likely to reinforce the status quo, it is media that most likely has the potential to offer a different portrait of possibility. Secondly, girls the world over manifest these gender norms in similar ways: by suppressing expressions of their emerging sexuality, by avoiding friendships with boys and by withholding their intellectual and physical capabilities so as not to be seen as too masculine. Lastly, while there are striking similarities across very diverse regions of the world, it is important to note that culture plays a critical role in how these gender norms play out.

“*If you do not follow these rules, you will suffer in the future, because you will not be able to cook in your own home. People will make fun of you saying ‘what kind of married woman are you?’*” (Girl, 12, Kinshasa)

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**Protective factors**

Across the developmental stages, girls are more likely to be resilient to adverse circumstances when a number of protective factors are in play. While these factors should not be viewed as a prescriptive list that guarantees success, they can be influential in girls’ development:

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<tr>
<th>Family connectedness</th>
<th>Remaining in school</th>
<th>Prosocial peer relationships</th>
<th>Resilience</th>
<th>Temperament</th>
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<td>The most protective factor in the lives of adolescents.</td>
<td>School attendance is consistently correlated to less disruptive and violent behaviour; less weapon-carrying; less drug, alcohol and tobacco use; less emotional distress; fewer suicide attempts, and later age at first sex.</td>
<td>Where close prosocial peer relationships exist, they are associated with less stress, less tobacco use, and later age of first sex.</td>
<td>The ability to rebound after setbacks. Resilience in particular is highly dependent on interactions with people in one’s environment.</td>
<td>In particular, a relatively stable, early-appearing, biologically rooted way of engaging with the world.</td>
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Golden threads: The implications for working with adolescent girls

The robust body of literature on adolescent development, echoed by the voices of girls themselves, indicates that adolescence is a critical moment to shift an individual’s trajectory. At the same time, adolescence is a time of heightened stress due to rapid changes in the brain and increased societal pressure to conform to gender norms. In environments where social change is the greatest, so too is stress.

A number of characteristics define the cognitive and behavioural development of adolescent girls during this time. These characteristics have important programmatic implications:

- **Experiences and development are interrelated.** Girls and boys need opportunities to take risks to grow. Given that girls tend to be more socially isolated than boys, these contexts that constrain their experiences (both freedom of movement and expression) limit their development. Interventions that allow girls to safely navigate risks and opportunities are critical.

- **Adolescents are less motivated by threats and punishments than children;** rather, incremental rewards and positive reinforcements are more motivating.

- **Adolescent girls experience significantly higher rates of depression than boys,** due both to biological changes and discrimination. The mental health of girls, and boys, must be considered in interventions. At the same time, boys often experience higher stigma when seeking mental health support.

- **The brain works on a ‘use it or lose it’ basis.** Discriminatory gender norms can result in restricted brain development for some girls; if certain areas of the brain are not used, atrophy may result (e.g. if girls are not encouraged to pursue mathematics).

There are three distinct developmental stages for adolescents (mid, early and late). An understanding of adolescent cognitive and emotional development offers important insight into how we design targeted interventions for girls across these stages:

- **Early adolescent girls look like mature women long before they have the cognitive abilities of adults,** putting them at heightened risk.

- **Planfulness is a capacity that develops in mid- or late adolescence;** it requires the capacity for future thinking. Interventions that focus on future planning for early adolescence are less effective.

- **Peer recognition has a greater effect on the reward systems of early and mid-adolescents.** Upon entry into late adolescence, the rewards of peer affirmation have less stimulatory effect on the reward system, and would have less influence on programme outcomes.

- **At the same time, late adolescents have greater ability to resist peer pressure.**

- **During late adolescence, there is increasing ability to regulate emotions.** This results in decreased distractions and allows for more focused concentration and rational decision-making.

- **Girls and boys experience behavioural and physical change differently.** For instance, girls have greater resistance to peer pressure and risk-taking at a younger age. Interventions must target the evolving capacities of boys and girls.
Comprehensive approaches that target across thematic areas (focusing on health, education, harmful traditional practices, safety, etc).

Media and digital interventions can challenge the status quo, portray a new reality and provide new role models.

Keeping girls in school increases agency and opportunity.

Engaging parents and gatekeepers in girls’ empowerment.

Providing opportunities for girls to raise their voice and engage in decision-making.

Cognitive and behavioural development shapes the adolescent experience. At the same time, social norms dictate the behaviour and attitudes expected of girls and boys. Findings from the largest study on adolescent gender norms suggests that experiences of gender roles and values are similar across the world. While it is critical to take into account the role of cultural context, these common gender scripts could offer insight into designing scalable solutions.