



Understanding child development from an evolutionary perspective

Dr Annie Swanepoel

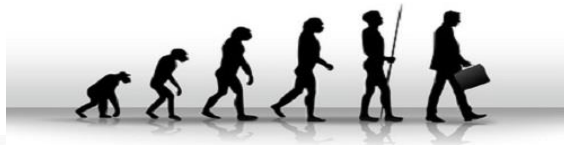
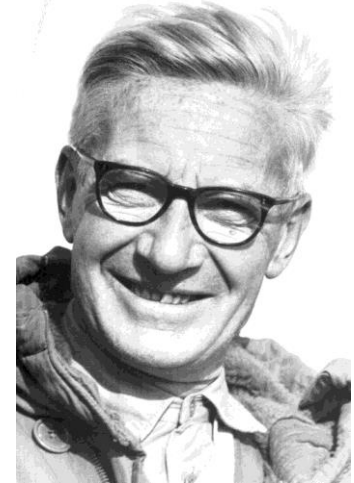
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Why an evolutionary perspective?

- We used to ask: **what is wrong** with the child?
- A trauma-informed approach asks: **what happened** to the child?
- An evolutionary view helps us understand **why** children develop the way they do.
- It helps us to see which behaviours are pathological and which are adaptive strategies.
- In other words, many of the children we see in practice have developed evolutionarily sound strategies to cope with a harsh environment.
- Recognising this can help children, their families and their clinicians reduce shame and blame.

Tinbergen's four questions

1. How does it work? (Mechanistic)
2. How did it develop? (Developmental)
3. How is this behaviour adaptive? (Survival value)
4. How has it evolved? (Evolution)



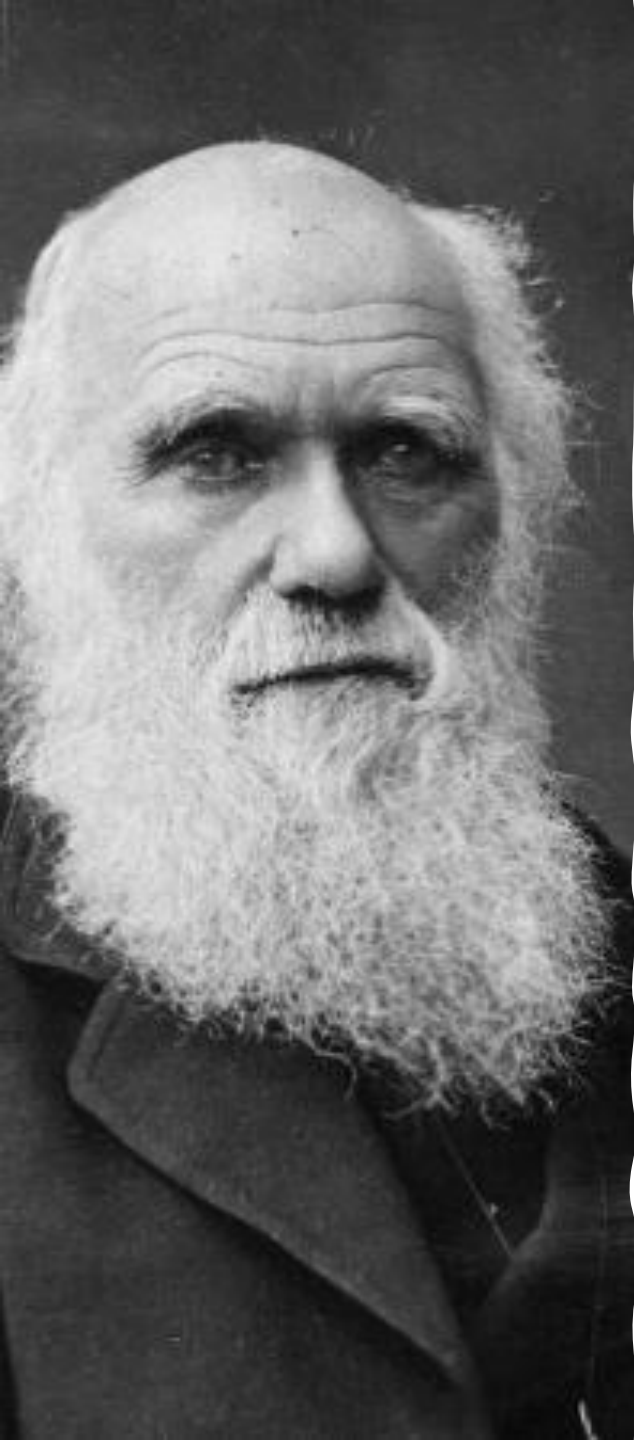
Nothing in biology makes sense
except in the light of evolution.

Some evolutionary concepts

1. **Parent-offspring conflict:** what is best for the parent is not always best for a particular child. This conflict can explain a significant amount of parental child abuse and neglect.
2. **Life history theory:** in harsh conditions, there is a trade-off between short term survival and reproduction at the cost of longer term health and happiness.
3. **Goodness of fit (conditional adaptation):** successful survival depends on the ability to predict and adapt to environmental demands, e.g. in dangerous environments it is adaptive to trust no one.
4. **Mismatch:** where current environmental demands do not fit with what we have evolved to cope with.

Parent-offspring conflict

- Parents (particularly mothers) had to make difficult choices when resources were scarce. For many mothers throughout our evolutionary past, it was not possible to provide for all their children all of the time.
- A baby, whose mother was not committed to their care, was in life-threatening danger for the most part of our evolutionary history. Even maternal preference for a sibling could result in death when resources were scarce.
- Those babies who responded in ways to keep their mother's attention and care, and therefore survived and reproduced, are the ones who became our ancestors.
- That explains why babies are so demanding and why sibling rivalry is so widespread.



Charles Darwin

“The Origin of Species”

“As many more individuals of each species are born than can survive; and as, consequently, there is a frequent struggle for existence, it follows that any being, if it vary, however slightly in any manner profitable to itself, under the complex and sometimes varying conditions of life, will have a better chance of surviving, and thus be **naturally selected**.

From the strong principle of inheritance, any selected variety will tend to propagate its new and modified form.”

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Slow life history

“Slow life history”
individuals defer reproduction and tend to have fewer offspring in whom they invest considerable resources (focus on QUALITY).

This is adaptive in a benign environment.



Fast life history

“**Fast life history**” individuals begin reproducing at a young age and tend to have more offspring, each of whom gets relatively little nurturance (focus on QUANTITY).

This is more adaptive in harsh and dangerous environments where many young are expected to die.



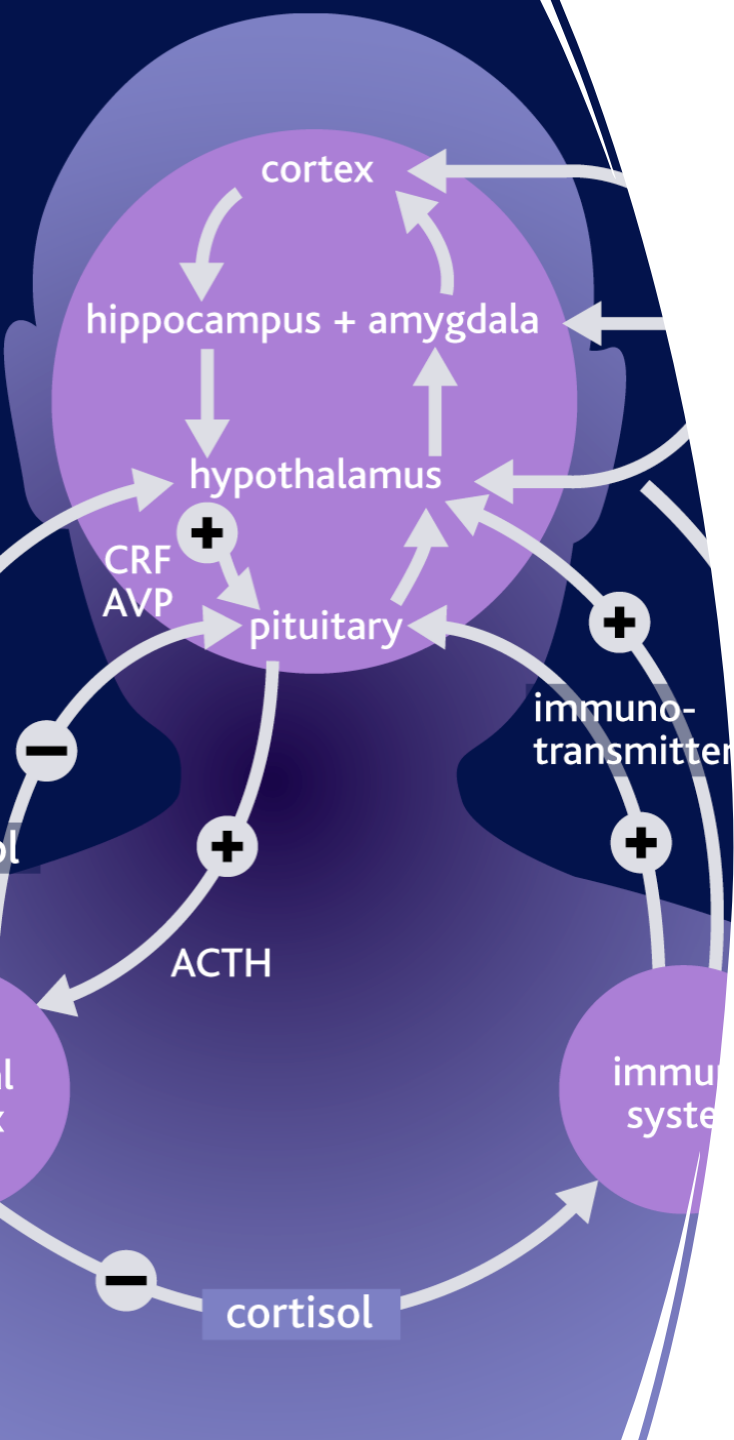
The Pair of ACEs

Adverse Childhood Experiences

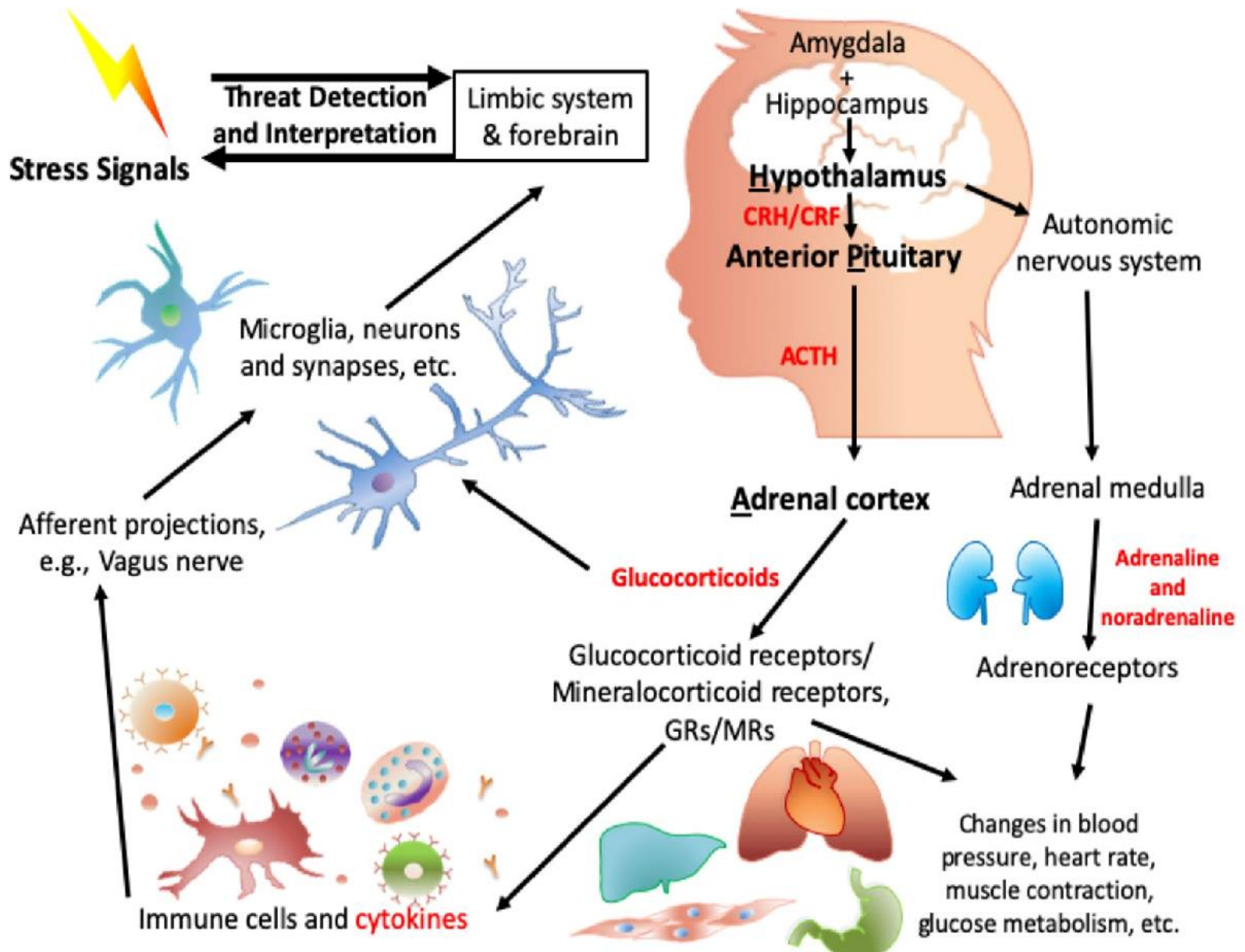


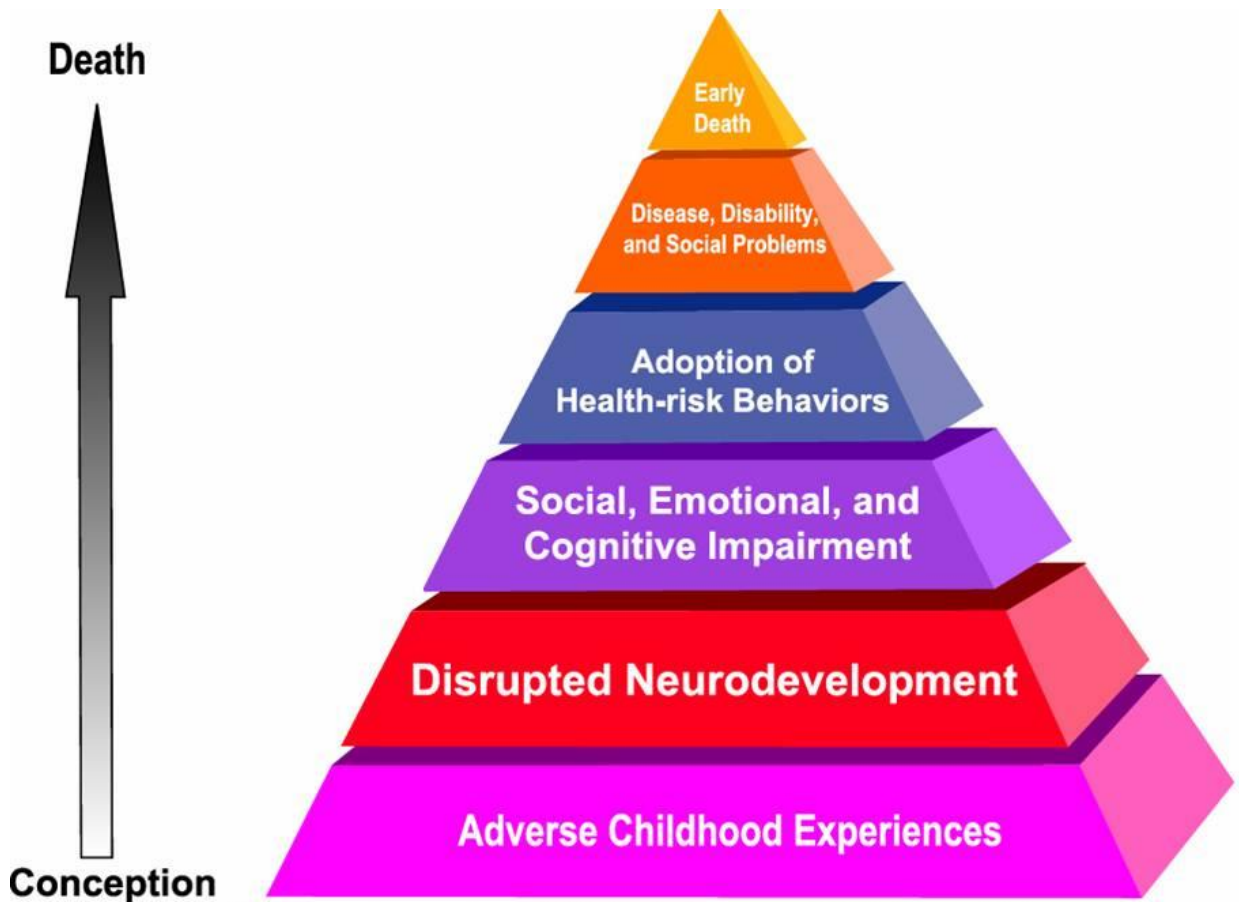
Ellis, W., Dietz, W. (2017) A New Framework for Addressing Adverse Childhood and Community Experiences: The Building Community Resilience (BCR) Model. *Academic Pediatrics*, 17 (2017) pp. S86-S93. DOI information: 10.1016/j.acap.2016.12.011

Intrauterine programming



- Dangerous environments would likely lead to a fearful mother, who is less able to provide sensitive and warm care.
- Early experiences calibrate the HPA axis to shape fear reactivity, resulting in hypervigilant and fearful young.
- Foetal programming prepares the infant for the type of postnatal environment it is likely to encounter.
- This is adaptive in a dangerous environment, even if it causes considerable suffering.





Mechanisms by Which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan

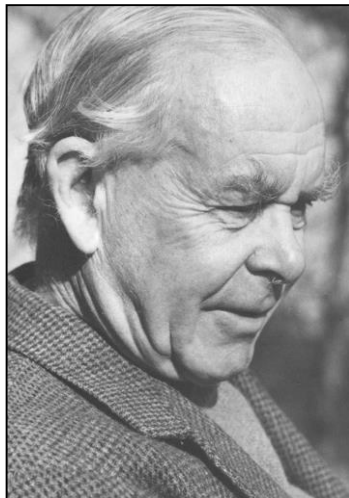
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Attachment theory

(John Bowlby and Mary Ainsworth)

- “Attachment” refers to the bond of the infant to its primary caregiver (usually the mother) and later towards meaningful others.
- This bond is necessary for mammalian newborns, who cannot survive by themselves. Close proximity to the mother protects against predators and provides a secure base from which the infant can explore and return to if frightened.
- Children can form multiple attachments if given the opportunity.



Attachment theory

Where mothers have enough physical and emotional resources, they can provide sensitive and responsive care.

This leads to infants developing a “**secure attachment**”, in which they believe themselves to be worth of care and others as capable of caring for them.

However, nature does not prepare babies only for the optimum where they are loved, wanted and sensitively cared for.

Children develop attachment relationships even if their caregivers are rejecting, inconsistently sensitive, or abusive.



Mary Main

Mary Main proposed that the attachment system would need to be capable of calibration to a variety of environments, favourable and adverse.

Sensitive caregiving is optimal, and the provision of a secure base would help a child to explore and learn.

However, less-sensitive caregiving could be expected to elicit responses that would support survival even in adverse conditions.



Insecure anxious-avoidant attachment

Mothers who are **dismissive** of their infant, have babies who learn to become as independent as possible, in order not to antagonise a rejecting mother.

These children develop an “**avoidant attachment**”, which is characterized as being compulsively self-reliant and not show their stress.

It is important to recognise that this is not pathological and is adaptive in the environment the baby grows up in.



Insecure anxious-ambivalent attachment

Intrusive and inconsistent caregivers who are **preoccupied** have children who develop an **anxious-ambivalent attachment** style and become compulsively care-seeking.

Once again, this is not pathological and is a style which allows children to get the most care they can from a caregiver who is able to provide good care at times, when given lots of prompts, by crying, whining, and clinging.



Disorganised attachment



Judith Solomon

Main and Solomon described a fourth style, which they termed “**disorganised**”, as these children would use unusual and odd ways of engaging with their caregiver.

The disorganised category is prevalent in psychiatric patients (about 90%) and is associated with care by a fearful or frightening caregiver, whose own childhood is **unresolved**.

Hrdy has argued that in previous times, children would not have survived such adversity.



Sarah Hrdy



Disorganised attachment

However, Haltigan has argued that freezing (or “attentive immobility”) is a functional response, which allows a **protective role in high-risk contexts** in which caregiver behaviour may be potentially harmful.



Also, Pat Crittenden has developed the Dynamic Maturational Model that obviates the disorganised category and describes it as **extreme strategies** of the avoidant or anxious styles.



Furthermore, it is conceivable that in high stress situations, risky, last-resort strategies may be adaptive in exploring alternative coping mechanisms to hopefully find a behaviour that reduces the risk to the child.



It takes a village to raise a child

The involvement of a **father** in childrearing has beneficial and distinct effects on the child's neurobiological maturation, and on the development of social competencies, particularly the child's capacity to manage aggression.

In many cultures, **grandparents** are particularly helpful in contributing to children's survival and helping them thrive.

Multiple caregivers and a network of attachment relationships have been found to constitute a protective factor in child development, with secure attachment to one person buffering the implications of insecurity in other relationships.



Internal models

In a benign environment where parents are well and have adequate support, they will provide sensitive and responsive care. Children will adapt to be open, trusting and able to accept help (**secure**).

If parents are stressed due to ill health, poverty or having less social support, they may be less able to provide consistent care. Such children will adapt by becoming compulsively self-reliant (**avoidant**) or clingy and compulsively care-seeking (**ambivalent**). These children will have highly activated stress systems, mirroring their parents' stress and adapting to the more stressful environment.

We know that chronic high stress levels contribute to mental and physical disorders later in life. **HOWEVER**, reproduction is not inhibited and thus the cycle is perpetuated with an **intergenerational transmission of trauma**.

High stress may be adaptive and enable survival in harsh environments – even when coupled with considerable suffering.

Recent consensus statement (2021)

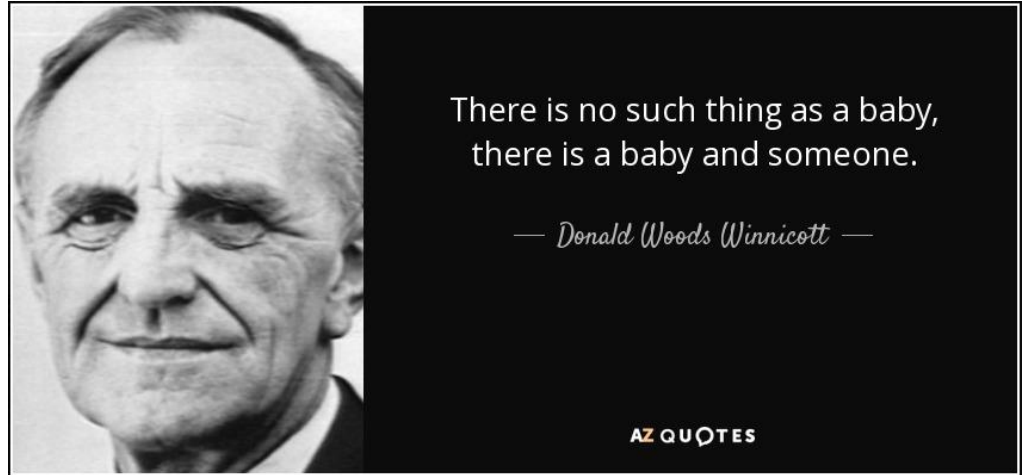
“Unless the world is successfully engineered to become a responsive and safe place with plenty of resources for all of its inhabitants, it may not be justified to consider only secure attachment relationships to be adaptive for all individuals.”

Tommie Forslund, Pehr Granqvist, **Marinus H. van IJzendoorn**, Avi Sagi-Schwartz, Danya Glaser, Miriam Steele, Mårten Hammarlund, Carlo Schuengel, Marian J. Bakermans-Kranenburg, Howard Steele, Phillip R. Shaver, Ulrike Lux, John Simmonds, Deborah Jacobvitz, Ashley M. Groh, Kristin Bernard, Chantal Cyr, Nancy L. Hazen, Sarah Foster, Elia Psouni, Philip A. Cowan, Carolyn Pape Cowan, Anne Rifkin-Graboi, David Wilkins, Blaise Pierrehumbert, George M. Tarabulsky, Rodrigo A. Carcamo, Zhengyan Wang, Xi Liang, Maria Kázmierczak, Paulina Pawlicka, Lilian Ayiro, Tamara Chansa, Francis Sichimba, Haatembo Mooya, Loyola McLean, Manuela Verissimo, Sonia Gojman-de-Millán, Marlene M. Moretti, Fabien Bacro, Mikko J. Peltola, Megan Galbally, Kiyomi Kondo-Ikemura, Kazuko Y. Behrens, Stephen Scott, Andrés Fresno Rodriguez, Rosario Spencer, Germán Posada, Rosalinda Cassibba, Neus Barrantes-Vidal, Jesus Palacios, Lavinia Barone, Sheri Madigan, Karen Mason-Jones, Sophie Reijman, Femmie Juffer, R. Pasco Fearon, Annie Bernier, Dante Cicchetti, Glenn I. Roisman, Jude Cassidy, Heinz Kindler, Peter Zimmerman, Ruth Feldman, Gottfried Spangler, Charles H. Zeanah, Mary Dozier, Jay Belsky, Michael E. Lamb & Robbie Duschinsky

Attachment goes to court: child protection and custody issues

Attachment & Human Development, DOI: [10.1080/14616734.2020.1840762](https://doi.org/10.1080/14616734.2020.1840762)

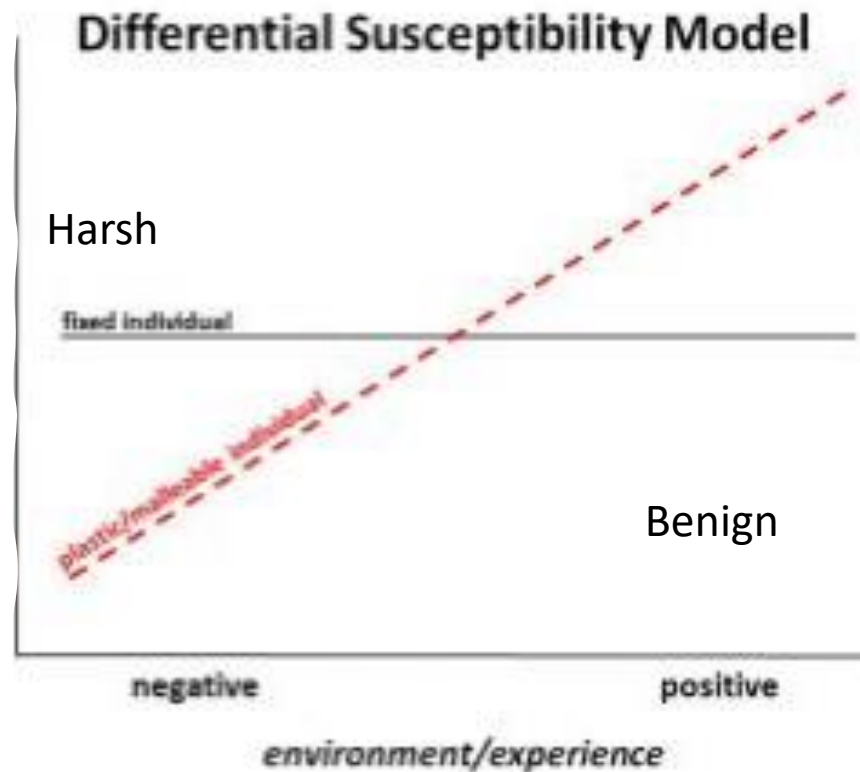
Caveat regarding attachment theory



- “Attachment” is about a particular relationship – it is not child-specific.
- The focus on attachment can unhelpfully legitimate a narrow focus on the mother–child relationship, and the responsibility of the mother for this relationship, thus directing attention away from the family socioeconomic context and the availability of social support.
- Some children are genetically more difficult to care for due to temperament, sensitivity and/or underlying neurodevelopmental conditions.
- Other children are genetically easy-going and resilient.
- Genes and the environment interact: Nature and nurture are important

Resilience: developmental plasticity

- Nature doesn't put all her eggs in one basket – so that there are always some who thrive, regardless of the environment.
- Although all children show a degree of adaptability, some are more sensitive to environmental effects (good or bad) than others – this is a **differential susceptibility** and not a vulnerability.
- Candidate genes: serotonin transporter and dopamine receptor genes.

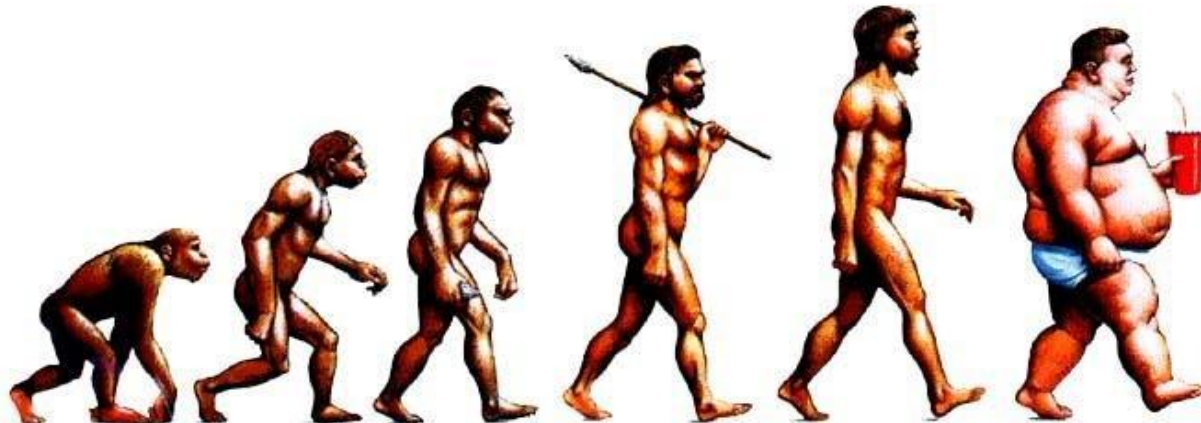


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Evolutionary mismatch

An **evolutionary mismatch** occurs when the environment in which an organism lives is significantly different from that in which it evolved. Traits that were once adaptive, may then become pathological.



ADHD as an evolutionary mismatch

The Environment of evolutionary adaptedness (EEA) was very different to current schools.



Conclusion



- Secure attachment with a slow life history is adaptive in a benign environment.
- In a dangerous world, the pathway described by insecure attachment, predisposing to fast life history, is more adaptive in terms of survival and reproduction – even if it does create genuine suffering.
- Not all children are equally sensitive to the environment – this is genetically determined to a large extent. Some are easier to care for than others.
- Further research into epigenetics and differential susceptibility may inform our thinking about which treatments might work best for specific patients.

Conclusion

- Acknowledging the importance of the early environment creates the potential to improve clinical outcomes, by increasing the resources given for parenting programs and early child development support.
- Understanding the evolutionary context and gene-environment interactions can help patients feel less shame and blame.
- An evolutionary view can give us a more sophisticated approach to psychopathology, enhancing the possibility of intervening more appropriately and with greater compassion.



Thank you
to my
co-authors,
and to all
of you for
listening

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