# Evolution and Depression

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# Life can be difficult so we need to prepare!

# The Challenges of Evolution

**1. Old Brain**

       Emotions:       **Anger, anxiety, sadness, joy, lust**

       Behaviours:    **Fight, flight, withdraw, engage**

       Relationships:  **Sex, status, attachment, tribalism**

**2. New Brain**

       **Imagination, fantasise, look back and forward, plan, ruminate, integration of mental abilities**

       **Self-awareness, self-identity, and self-feeling**

**3. Social Brain**

       **Need for affection and care**

       **Socially responsive, self-experience and motives**

**What happens when new brain is recruited to pursue old brain passions?**

# Depression as a Syndrome

**Motivation**      Apathy, loss of energy and interest:  things seem pointless, hopeless

**Emotional**       Low mood, anhedonia, emptiness, anger or resentment, anxiety, shame, guilt

**Cognitive**   Poor concentration, negative ideas about the self, the world and the future.

**Behaviour** Lowered activity, social withdrawal, agitation or retardation.

**Biological**      Sleep disturbance, loss of appetite, loss of weight, changes in circadian rhythms, hormones and brain chemicals.

**Key symptom is anhedonia, loss of pleasure and positive affect**

# Anhedonia

**Different meanings of anhedonia:**

* Loss of interest

* Loss of pleasure - positive affect

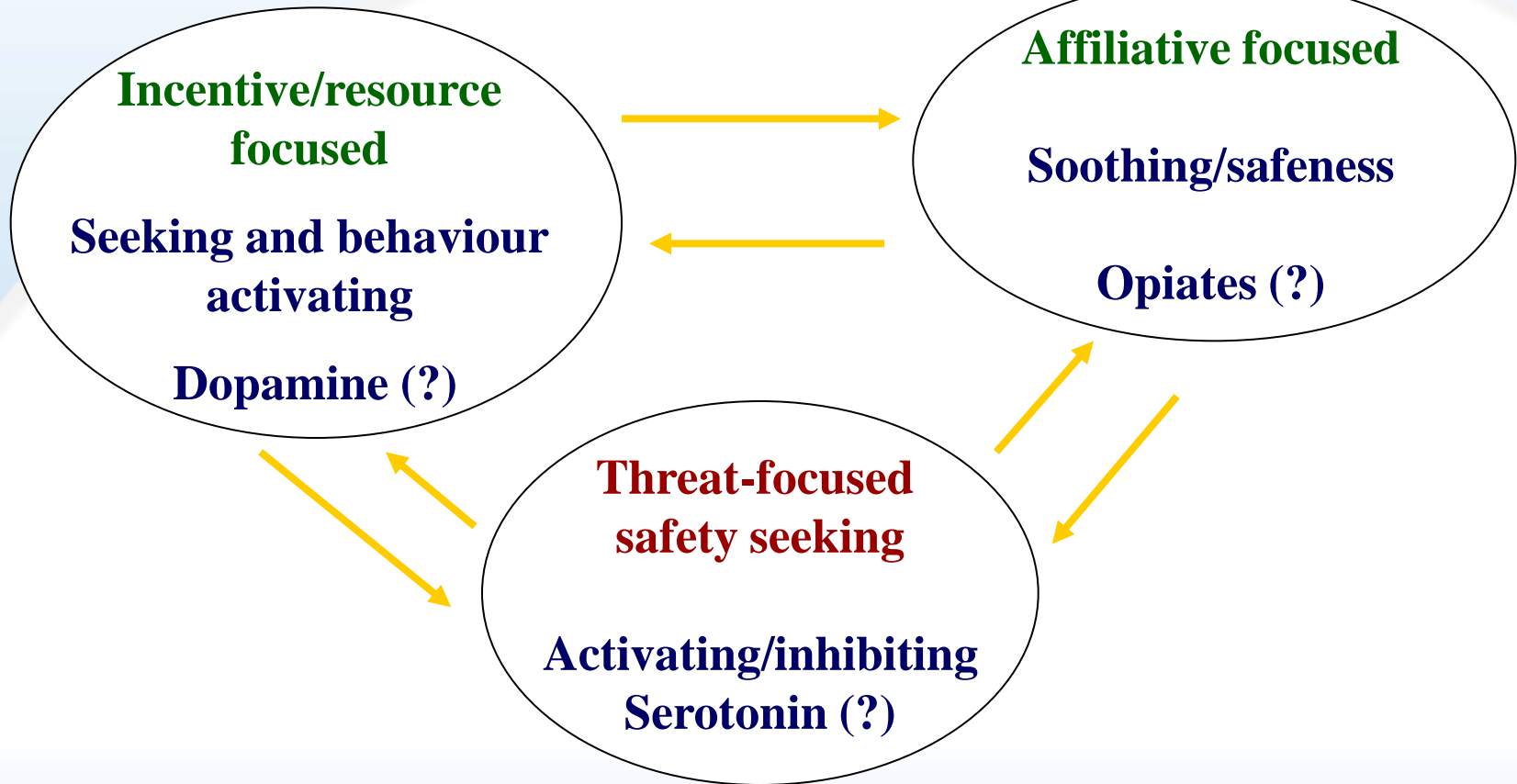* Loss of motivation

* Disengagement –reduced exploration

**Need to explain:**

* Types and functions of positive affect

* Regulators of positive affect

* Value of toning-down positive affect

* Loss of confidence

# Types of Affect Regulator Systems

**Drive, excite, vitality**

**Content, safe, connect**

Incentive/resource focused

Seeking and behaviour activating

Dopamine (?)

Affiliative focused

Soothing/safeness

Opiates (?)

Threat-focused safety seeking

Activating/inhibiting Serotonin (?)

**Anger, anxiety disgust**

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# Threat and Depression

**Depression as a pattern of increased threat-system activation and lowered positive affect activation is mostly likely to be linked to strategies for handling threats – especially social threats**

# Main Evolutionary Theories

**Non-social**

> **Conservation of resources**
>
> **Harm minimisation**
>
> **Stop pursuing the unobtainable**
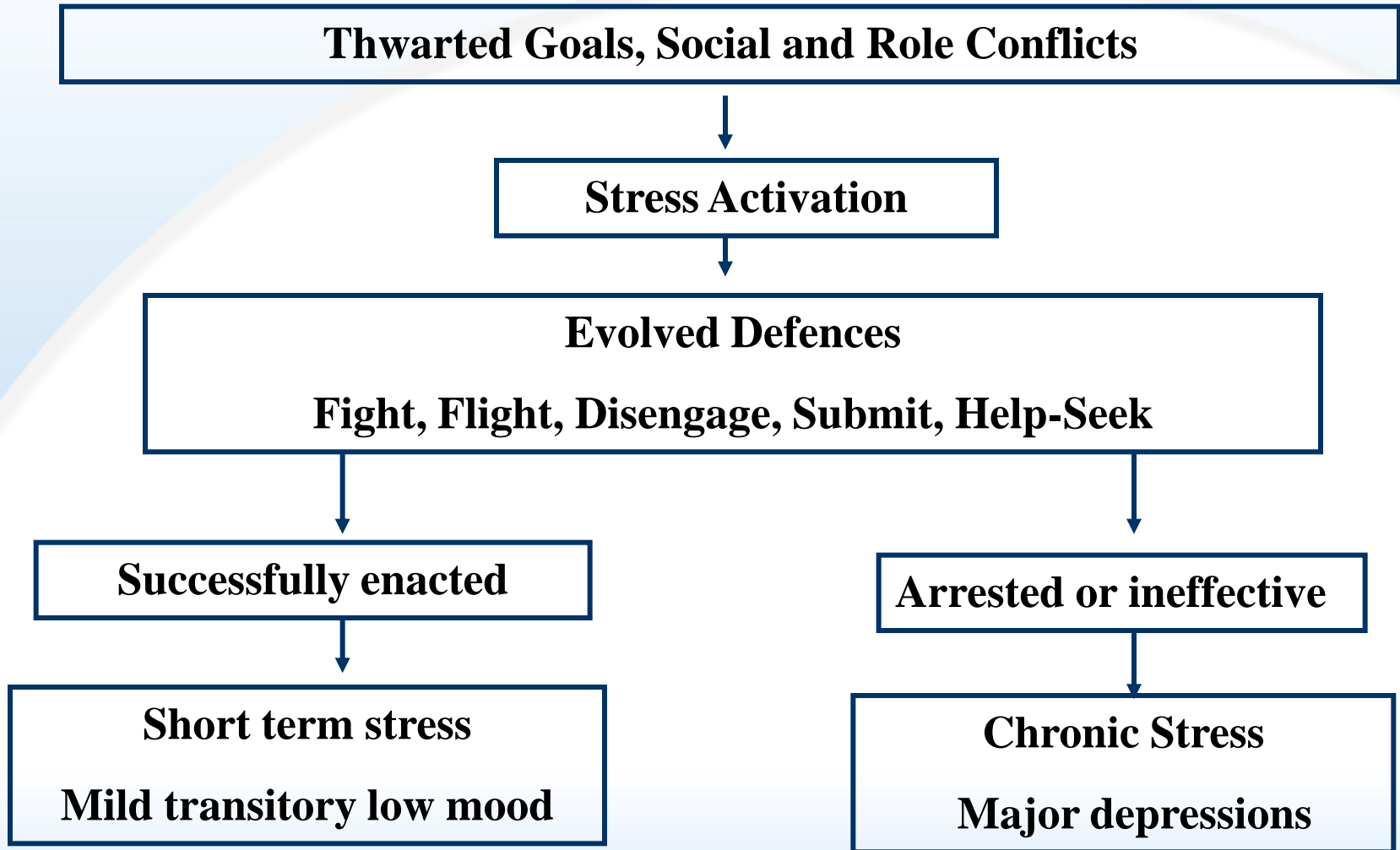>
> **Defeat and arrested defences**

**Social**

> **Affiliation loss - disconnection**
>
> **Social defeat and involuntary subordination - social powerlessness**

**Pathways to regulation of positive affect and behavioural activation/deactivation**

# **Defeat and Entrapment Model**

# Arrested Defences and Depression

Thwarted Goals, Social and Role Conflicts

↓

Stress Activation

↓

Evolved Defences

Fight, Flight, Disengage, Submit, Help-Seek

↓ ↓

Successfully enacted

Arrested or ineffective

↓ ↓

Short term stress

Mild transitory low mood

Chronic Stress

Major depressions

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# Key Depression Variables

**Defeat** – must down grade positive affect to induce disengagement and avoid further injury or risk of harm/loss and signal to others

**Entrapments** – cannot get away from hostile and thwarting environments - arrested defenses –high arousal

# Measuring Defeat and Entrapment

**Defeat**

I have sunk to the bottom of the ladder

I feel defeated by life

**Entrapment**

I am in a situation I feel trapped in

I have a strong desire to escape from things in my life

**Both are linked to sucidality**

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# Some data

**Evidence for heightened defeat and arrested flight in depression/anhedonia (N=90)**

## Entrapment                          Defeat

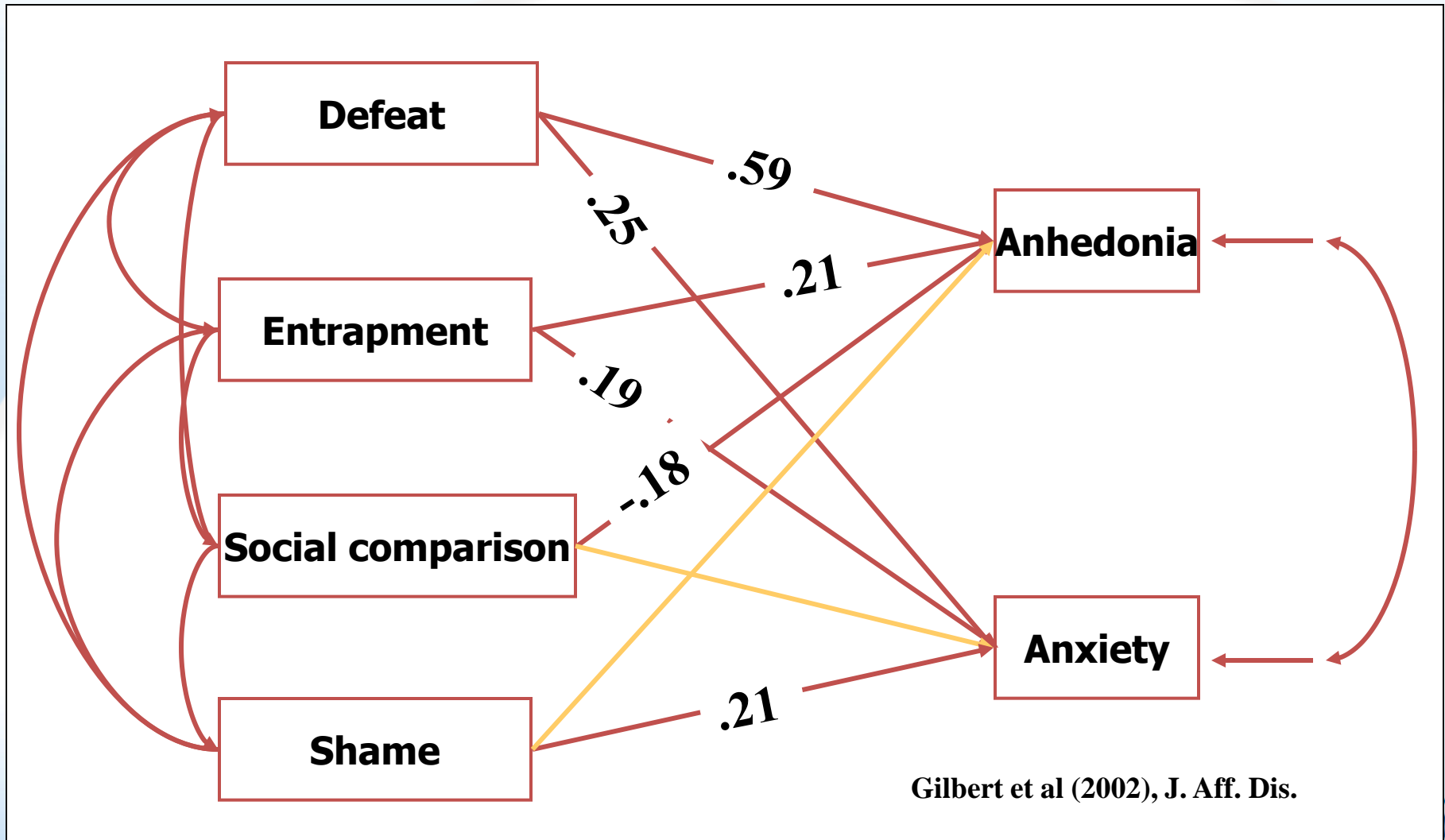| | |
|---|---|
| **BDI** (r = .54) | **BDI** (r = .77) |
| **HP** (r = .61) | **HP** (r = . 65) |
| **ANH** (r = .63) | **ANH** (r = . 79) |

**BDI = Beck Depression Inventory;  HP= Hopelessness, ANH = Anhedonia**

Source: Gilbert & Allan  (1998), Psychol. Medicine,
Gilbert et al (2002), J. Aff. Dis.

# Path diagram of relations between social rank variable, anhedonia and anxiety



Gilbert et al (2002), J. Aff. Dis.

# Attachment Loss

# Social Disconnection

# Affiliation – disconnection model

**Dispersal – low care (e.g., Turtles)**

**Protection – close seeking 'other' becomes a psychobiological regulator (Mammals)**

**Loss triggers protest (attract attention –reunion)**

**Despair following non-reunion protest
(close down positive affect systems) –
avoids predation, dehydration and getting lost**

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# Functions of Caring Attachments

**The Carer-Provider offers……**

**Protection:** anticipating/preventing; build nest out of harms way, defending/standing up for – advocate

**Distress call responsive:** listening out for; rescuing; coming to the aid of – responding to distress

**Provision:** physical care, hygiene, food

**Affection:** warmth positive affects that acts as key inputs for brain maturation

**Education and Validation:** teach/learn life skills in family context: understanding one's own mind

**Interaction:** being present, stimulating and regulating various affect systems: curiosity, play, soothing – socialising agent – shaping phenotypes

# Functions of Early Relationships

Provide protection from external danger

Provide needed resources – food, warmth

Stimulate (positive) affect systems

Emotional regulation

Guide self-other evaluative systems

Threats: low protection, low positive affect, neglect, trauma/abuse
Depression highly linked to poor early attachments

Reduced risk of depression in the context of high care even if there is a genetic vulnerability

# Evidence linking disconnection-despair to depression

*Low-affection parenting* early vulnerability factor for depression

*Lack of social support* is a common current vulnerability factor for depression

*Loss events* common triggers for depression

*Experience* of depression often associated with inward feeling of aloneness, cut off from others - disconnected from help

Understanding the *neuroscience of affiliation and loss*

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# Relationship between Defence and Safeness in Attachment

## Attachment Relationship

### Threat/low safeness

### Safe empathic

Better safe than sorry
Prime fight, flight, submit, help seek
Damage limitation

Enhancement (vs dam lim)
Explore, develop, initiate, creative, novel, open, relaxed

## Role Relationships

It is relative balance that is important – related to complex internal relationship

# Competing for social Attractiveness

# Shame and Depression

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# Strategies for Gaining
# and Maintaining Rank and Status

| Strategy | Aggression | Attractiveness |
|---|---|---|
| Tactics used | Coercive<br>Threatening<br>Authoritarian | Show Talent<br>Show competence<br>Affiliative |
| Outcome desired | To be obeyed<br>To be reckoned with<br>To be submitted to | To be valued<br>To be chosen<br>To be freely given to |
| Purpose of strategy others | To inhibit others<br><br>To stimulate fear | To inspire, attract<br><br>To stimulate positive affect |

From Gilbert & McGuire 1998

# Safeness and the Minds of Others

**Creating positive feelings and thoughts in the minds of others, about oneself, makes the world safe**

safe and will not be rejected or attacked

likely to be available in time of need

co-create advantageous relationships (e.g., sexual, co-operative)

physiologically regulating (e.g. oxytocin, cortisol)

stimulates positive feelings for self and other

lay down emotional memories of warmth

**Creating negative feelings (contempt, anger, ridicule) in the minds of others leading to attack, rejection or 'un-included' makes the world unsafe**

major threat --- generating defensive behaviours such as

fight/flight/submit

# Low Rank - Social defeat

Compete for space and mates – losers leave

⬇

Protection – in groups and forming affiliative and
sexual relationships – social hierarchies

⬇

Compete for place with competitors engaging in choosing, threatening
and/or excluding

⬇                                          ⬇

**Voluntary subordination**              **Involuntary  subordination**

Acceptance, support                      rejected, threat, fearful

affiliative                              submission, defeated

                                         lack qualities to make

                                         other's choose one

# Attracting, Competition and Social Rank

**Seeking to stimulate positive affect (desires) in the minds of others, about the self, is competitive because** an audience will choose in their best interests too

**Competing for resources and social place is thus**

**1. To be able to engage others as** helpful partners in roles

**2. Helpful partners (expressing liking) also help** make the world safe

**3. Major physiological regulators linked to** health

# Evidence linking social threats and shame to depression

*Early abuse, shaming and peer group bullying* early vulnerability factors for depression – experience of powerlessness

*Social undermining,  and criticism/bullying* current vulnerability factors for depression

*Life events of defeat and status loss* common triggers for depression.

*Experience* of depression often associated with inward feeling of inferiority, powerlessness and defeat

# Some Key vulnerabilities
# in the social rank-shame approach

**Social comparisons** – major regulators of affect and social behaviour (self as inferior to others).

**Submissive behaviour-** The readiness to engage in submission as a defense

**Social context (ES)-** How one lives in the minds of others – external shame (looked down on by others)

**Competing to avoid inferiority** – the degree to which people feel they have to compete to avoid inferiority and its consequence

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# Three measures of status vulnerability

**Social comparison**

**Compared to others I generally feel:**

> **Inferior 1 2 3 4 5 6 7 8 9 10 Superior**

**Submissive behaviour**

**I agree that I am wrong even though I know I'm not**

**I do what is expected of me even when I don't want to**

**External shame**

**I think that other people look down on me**

**Other people see me as small and insignificant**

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# Data for Anhedonia

## Students (N =193)

| Soc Com | Sub Beh | Ex shame |
|---------|---------|----------|
| - .44   | . 44    | . 56     |

## Patients (N =81)

| Soc Com | Sub Beh | Ex shame |
|---------|---------|----------|
| - .72   | . 55    | . 53     |

Gilbert et al 2002 Journal of Affective Disorders, 71, 141-151

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# Competing to avoid inferiority but not seek superiority

**Insecure/striving competition**

To be valued I have to strive to succeed

Life is a competition

People compare me to others to see if I match up

**Secure/non-striving competition**

Others will accept me if I fail

I don't feel under pressure to prove myself

You are loved for what you are not what you achieve

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# Striving to Avoid Inferiority

## Students (N =207)

| Miss out | passive reject | active reject |
|:---:|:---:|:---:|
| .64 | .67 | .54 |

## Patients (N =63)

| Miss out | passive reject | active reject |
|:---:|:---:|:---:|
| .73 | .71 | .75 |

Gilbert et al., (2007) British Journal of Social Psychology, 46, 633-648.

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# Data for Striving to Avoid Inferiority
## Non-striving

### Patients (N = 62)

| Soc Com | Sub Beh | Ex shame |
|---------|---------|----------|
| - .51   | .52     | .70      |
| .49     | -.32    | -.53     |

| Stress | Anxiety | Depression |
|--------|---------|------------|
| .71    | .52     | .52        |
| -.59   | -.36    | -.39       |

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# Internal Shame

# and

# Self-Criticism

# Key Questions

**Need to ask:**

    **1. Is it possible that some recent adaptations in the brain make us more vulnerable to mental disorders  –  e.g., self-awareness, anticipation and rumination?**


    **2. Is it possible that some recent adaptations in the our social-cultural life styles make us more  vulnerable to mental disorders e. g., entrapments, domestic violence, mass media.**
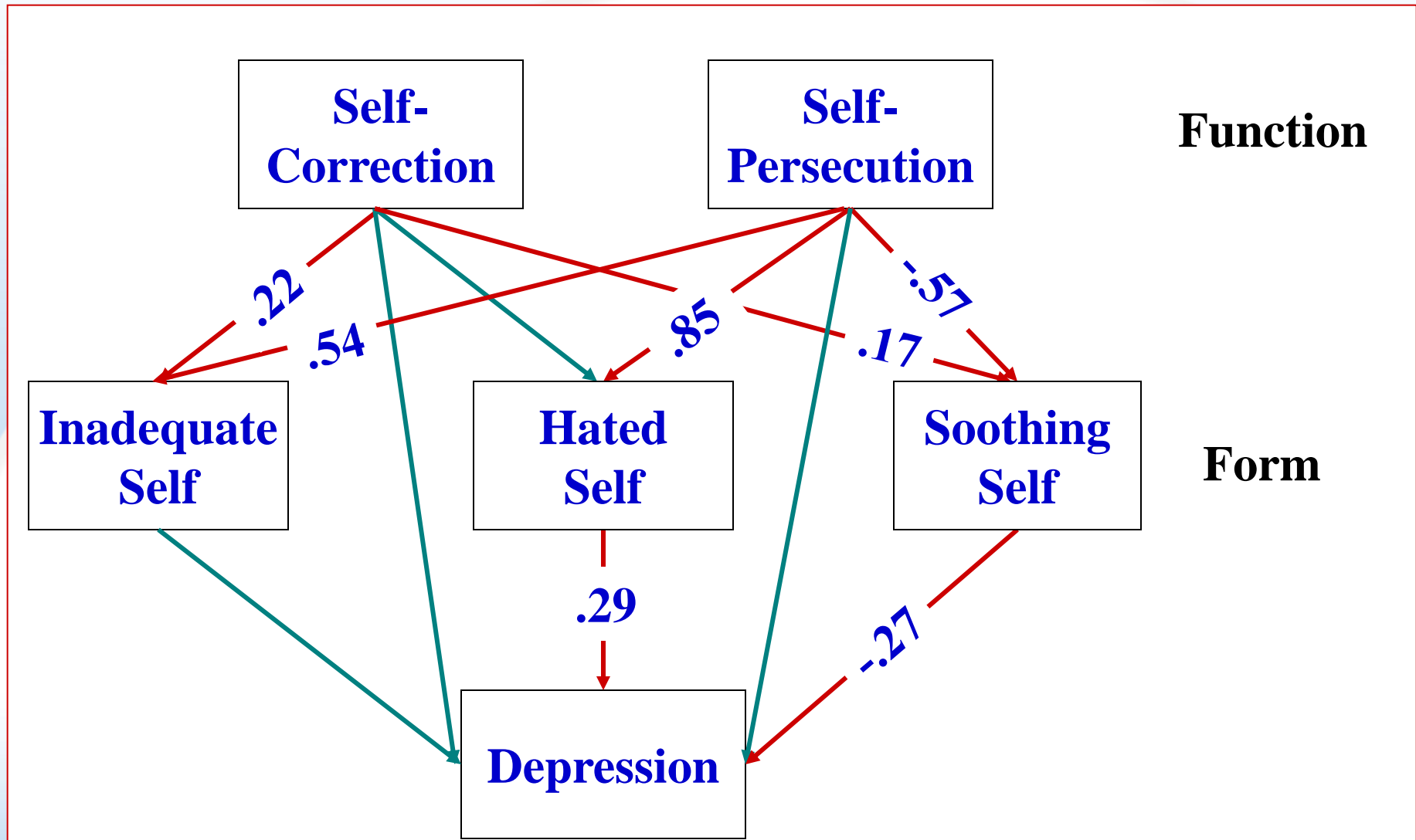
# Stimulus-Response
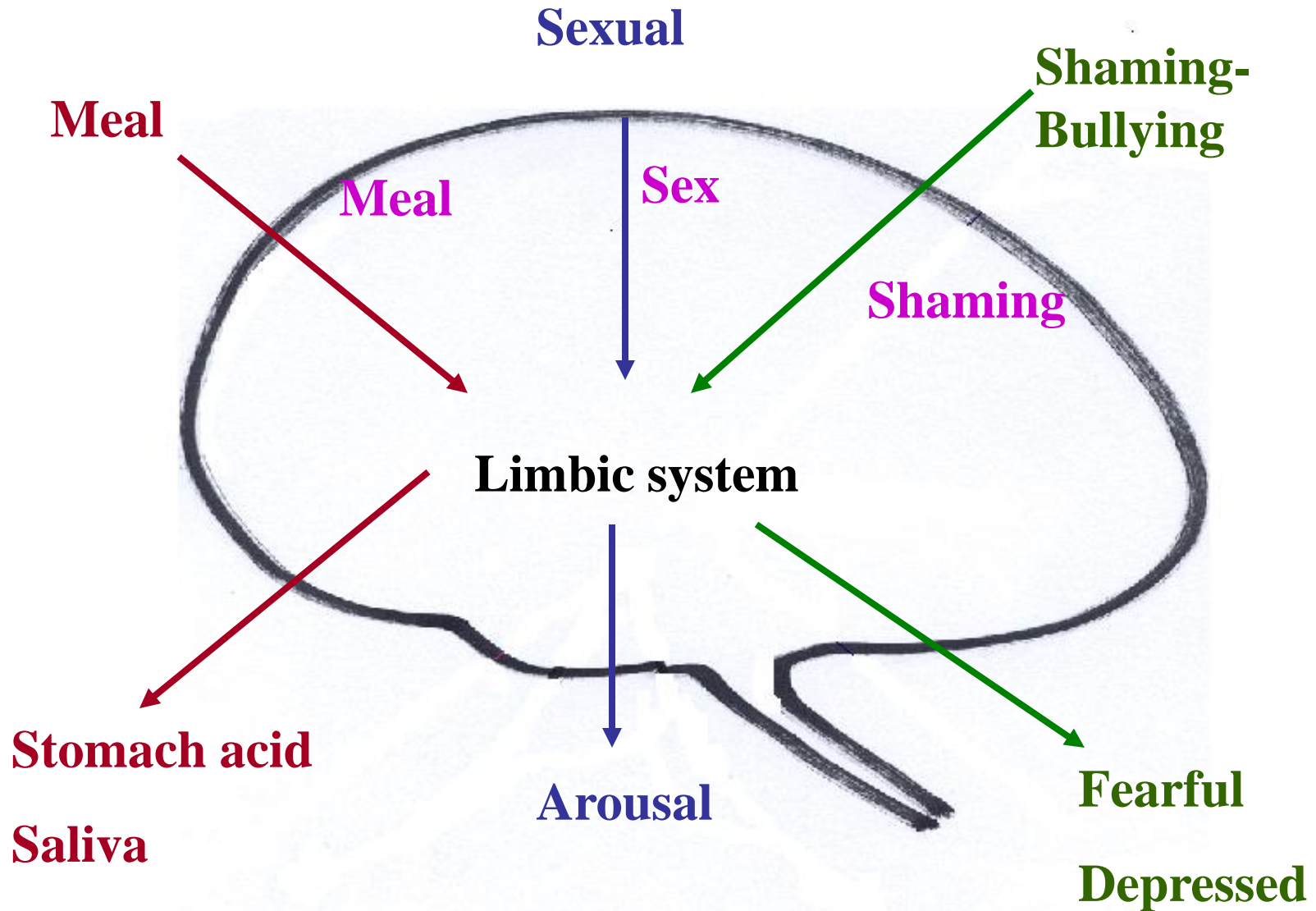
[Video](#)

**Figure 1: Path analysis showing effect of functions mediated by forms, with standardised parameter estimates labelled. (Statistically significant paths at p < 0.05 are shown in bold.)**
From BJCP 2004 43, 31-50.

# Why Focus on Self-Attacking?

**Self-criticism in childhood is a predictor of later adjustment  (Zuroff et al., 1994)**

**Maybe a trait marker for depression (Hartlage et al., 1998)**

**Predicts life-time risk of depression (Murphy et al., 2002)**

# Why Focus on Self-Attacking?

**Self-critics have poor social relationships (Zuroff et al; 1999)**

**Depressed people become more self-critical as mood lowers (Teasdale & Cox, 2001)**

**Self-critics may do less well with standard CBT (Rector, et al., 2002)**
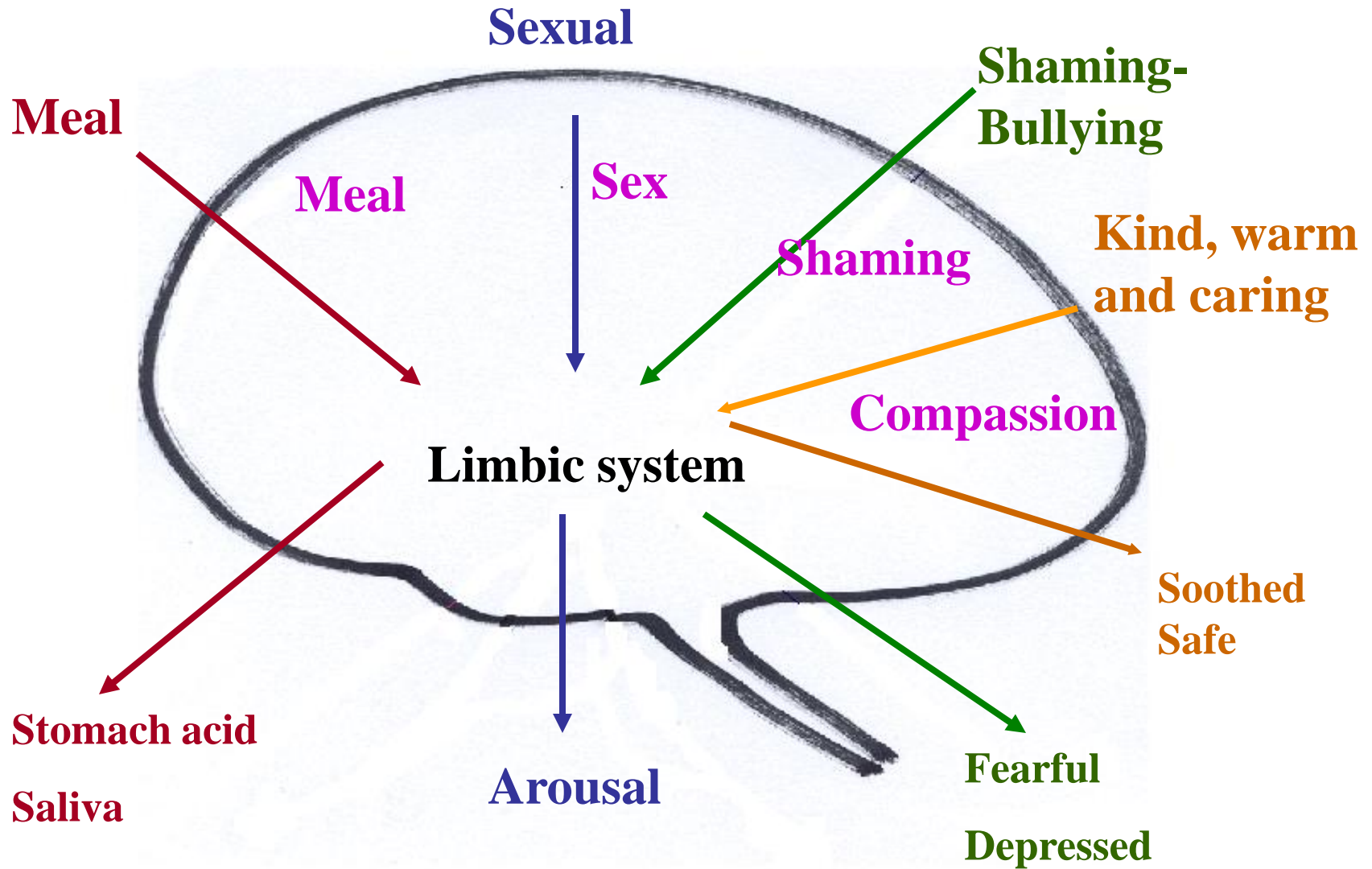
# Self-Attacking in Psychosis

**70% of voices are malevolent**

**Commands – sometimes with threats**

**Insults (direct and indirect)**

# Conclusion

Evolution has a number of basic systems that become regulated in new ways (e.g., one threat system)

The regulators that give rise to the patterns we label depression are now multiple or as Akiskal and Mckinney said in 1975 –depression is a final common pathway

Understanding people's unique pathways open the avenues for person-focused therapies.

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