UNDERSTANDING ADOLESCENT DEPRESSION: A BIOPSYCHOSOCIAL APPROACH

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University of Edinburgh
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Adolescent Depression

OVER HALF OF DEPRESSION CASES EMERGE BY AGE 25
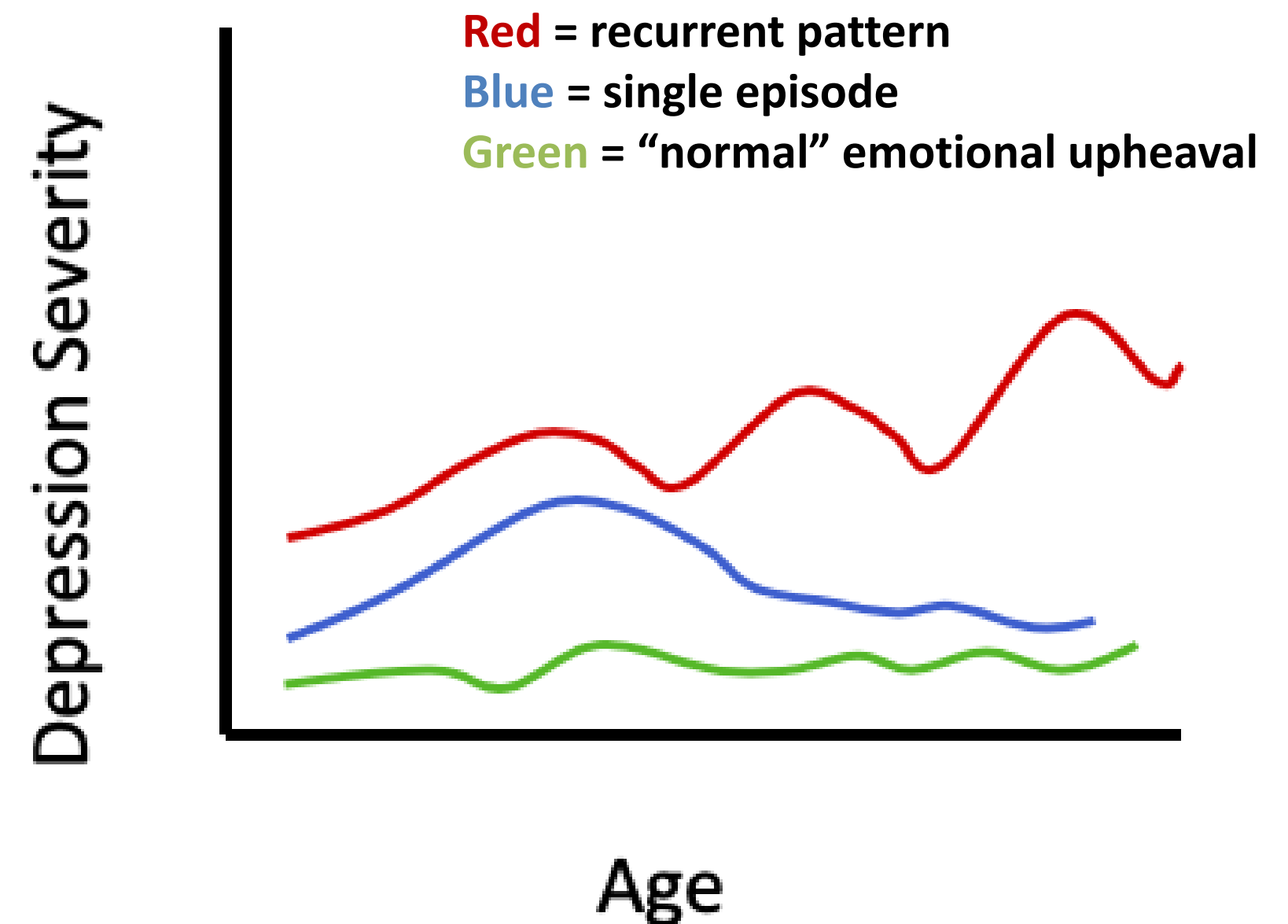
LEADING CAUSE OF ILLNESS AND DISABILITY IN YOUTH

ASSOCIATED WITH A HIGH-RISK ILLNESS TRAJECTORY
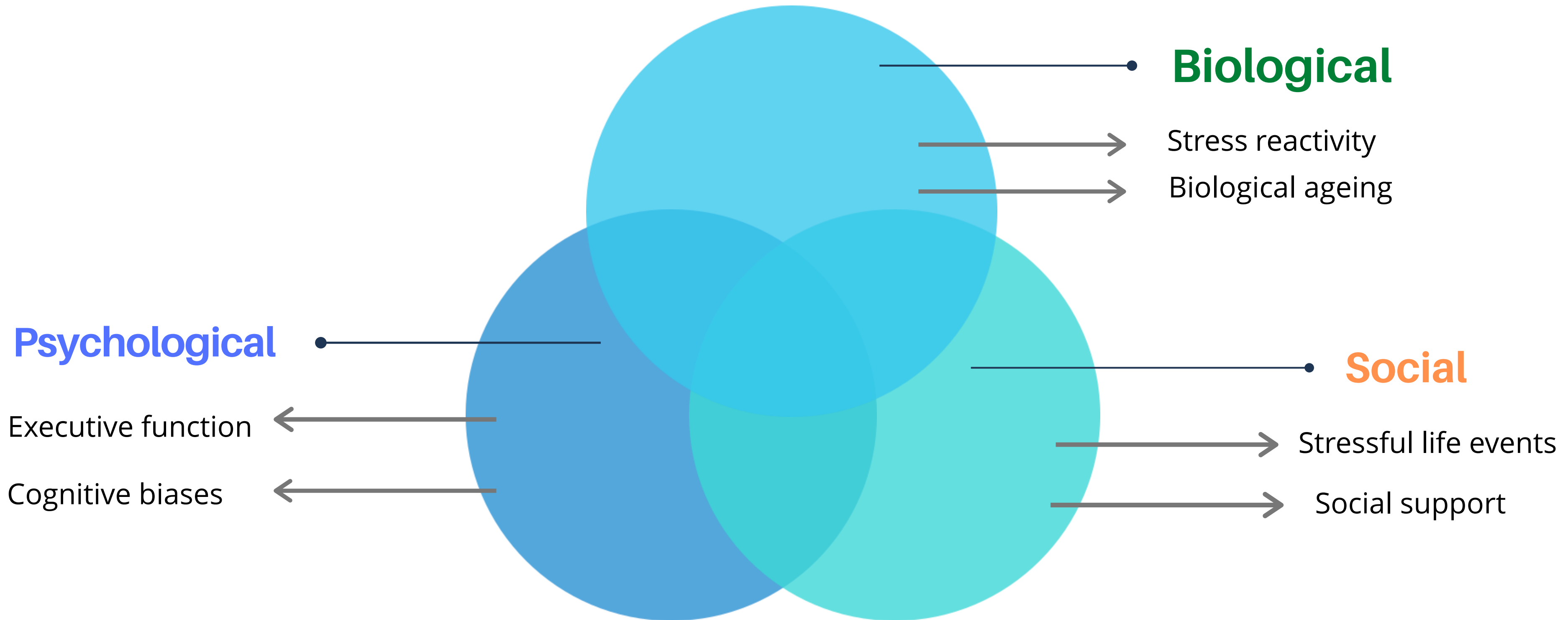
TREATMENT EFFICACY MODEST AT BEST

Swartz, Knodt, Radtke, & Hariri, 2015; World Health Organization, 2012

- What are the factors that differentiate individuals who have experienced depression during adolescence from those who have not?

- Which of these factors predict illness trajectory (i.e., recurrent vs. non-recurrent)?

Illustration of different trajectories

Red = recurrent pattern
Blue = single episode
Green = "normal" emotional upheaval

Biopsychosocial Model

Biological

Stress reactivity →

Biological ageing →

Psychological

← Executive function

← Cognitive biases

Social

Stressful life events →

Social support →

Biological Factors

STRESS REACTIVTY

- Cortisol = "stress hormone"

- Hair cortisol analysis method

- Higher levels associated with depression in adults; less is known about whether this occurs in adolescents

H1: Adolescents with a history of depression will exhibit higher hair cortisol levels compared to those without a history

BIOLOGICAL AGEING

- DNA methylation — epigenetic mechanism

- Change in DNA expression but not structure

- Influenced by genetic and environmental factors

- Accelerated biological ageing increased risk for depression in adults — unknown whether this happens earlier in development

H2: Adolescents with a history of depression will exhibit accelerated biological ageing compared to those without a history

Han et al., 2018; Wei et al., 2015; Whalley et al., 2017
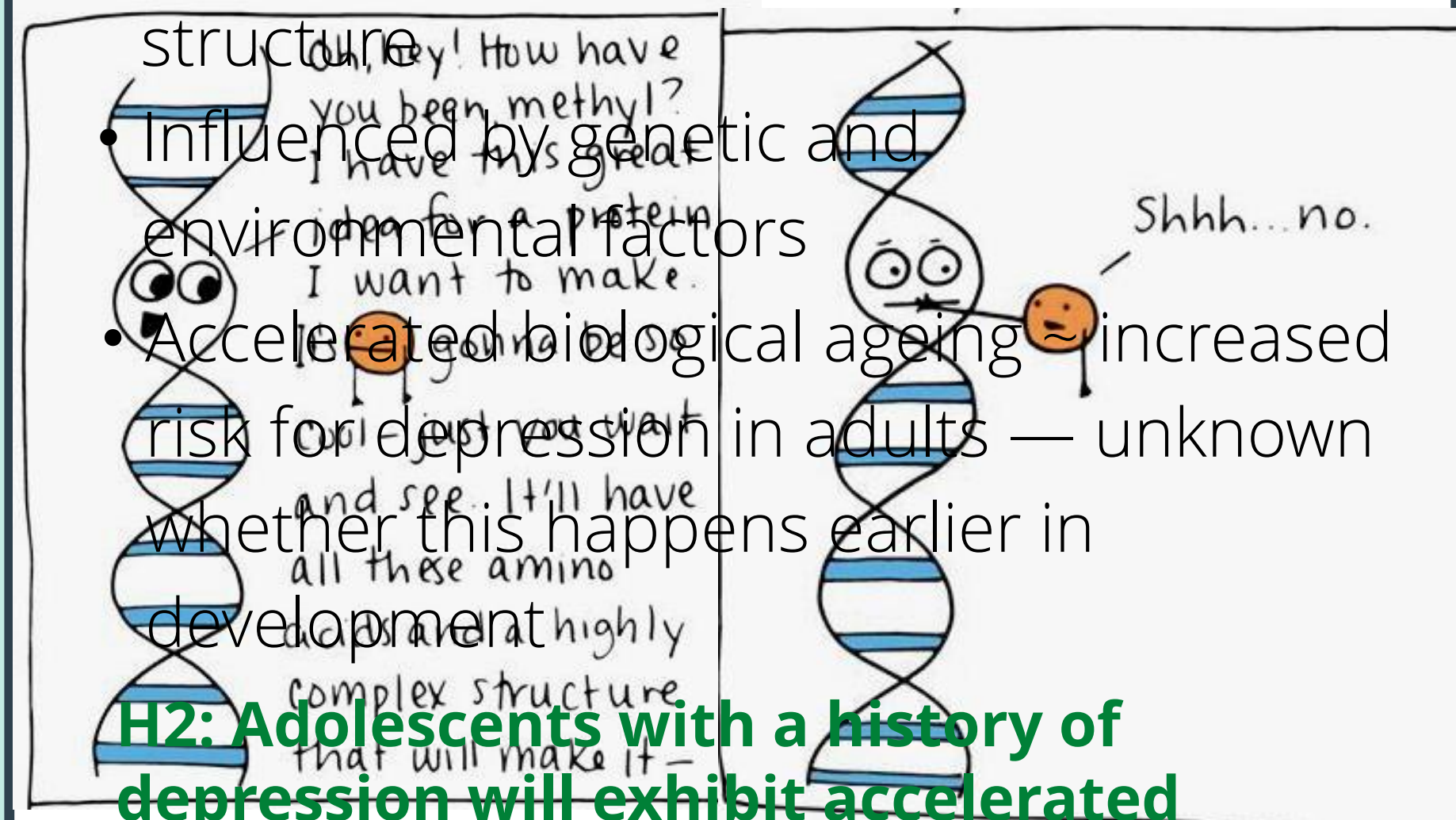
Psychological Factors

EXECUTIVE FUNCTION

- Examples include working memory and inhibition
- Higher executive function may be a resilience promoting factor

COGNITIVE BIASES

- Negative attribution style, blunted reward response, rumination, self-criticism
- Consistently associated with depression
- Target of mainstream psychotherapy, e.g., cognitive behavioural therapy (CBT)

H3: Adolescents with a history of depression will exhibit greater cognitive biases and lower levels of executive function

Riglin et al., 2015; Shore et al., 2017; Smith, Reynolds, Orchard, Whalley, & Chan, 2018; Thapar, Collishaw, Pine, & Thapar, 2012.

Social Factors

Stressful life events

Physical activity

Stigma

Social support

Lifestyle factors

H4: Adolescents with a history of depression will report higher levels of stressful life events and trauma, and lower levels of social support compared to those without a history of depression

Shore et al., 2017; Thapar et al., 2012

Study Design

Recruitment

Data Collection

Sample

80 adolescents with history of depression

80 matched controls

Aged 16 - 25

① Baseline

Online session (45 mins)
Questionnaires examining psychosocial factors

Face-to-face session (90 mins)
Clinical interview

Neurocognitive computer tasks

Biological samples: Hair (cortisol) and saliva (DNAm)

② Follow-up (6, 12, 18 months)

Online session (20 mins)
• Recurrence of depression
• General mental and physical health
• Stressful life events

③ NHS Data Linkage

• Track longer term health outcomes over next 10 years

2020 Plan

DATA COLLECTION

GOAL: Baseline data collection complete by June 2021

Other activities

- Study protocol in preparation to submit to Wellcome Open Research

- Co-authored systematic review on cognitive maturity for the Scottish Sentencing Council
  - O'Rourke, S., Whalley, H., Janes, S., **MacSweeney, N.**, Skrenes, A., Crowson., S., & Schwannaeur, M. (2020). The development of cognitive and emotional maturity in adolescents and its relevance in judicial contexts: A systematic review.

- Awarded Royal Society STEM Partnership grant (£3k) to undertake project with local school

- Finalist, 3 Minute Thesis Competition

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CCBS — Centre for Clinical Brain Sciences

MentalHealth ResearchUK

THANK YOU ???

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