

INTERVENTO PRECOCE: NUOVI ORIZZONTI



Bari, 29/09/2023

Prof Lucia Valmaggia

Head of VR Lab IoPPN & Hon. Consultant Clinical Psychologist
Visiting Professor KU Leuven



@Lucia_Valmaggia

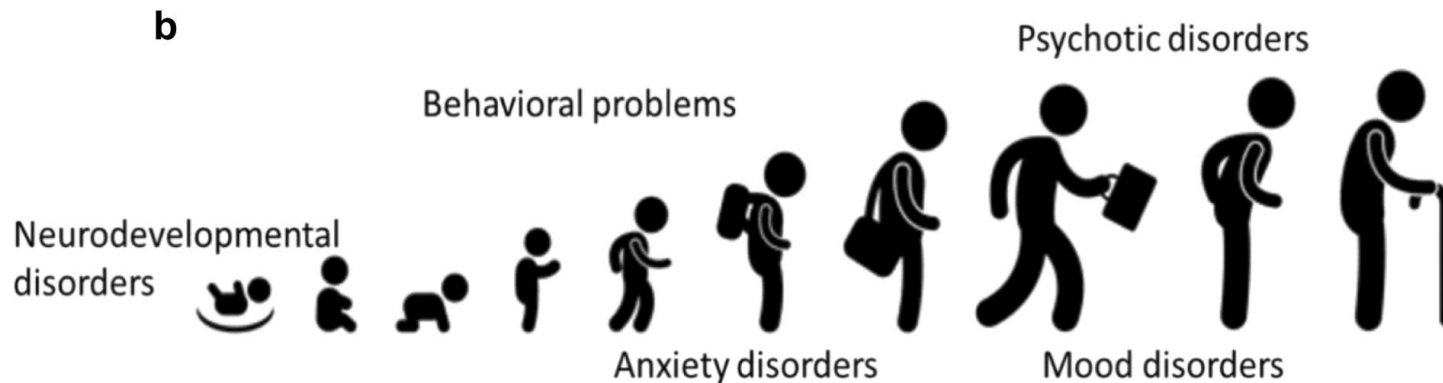
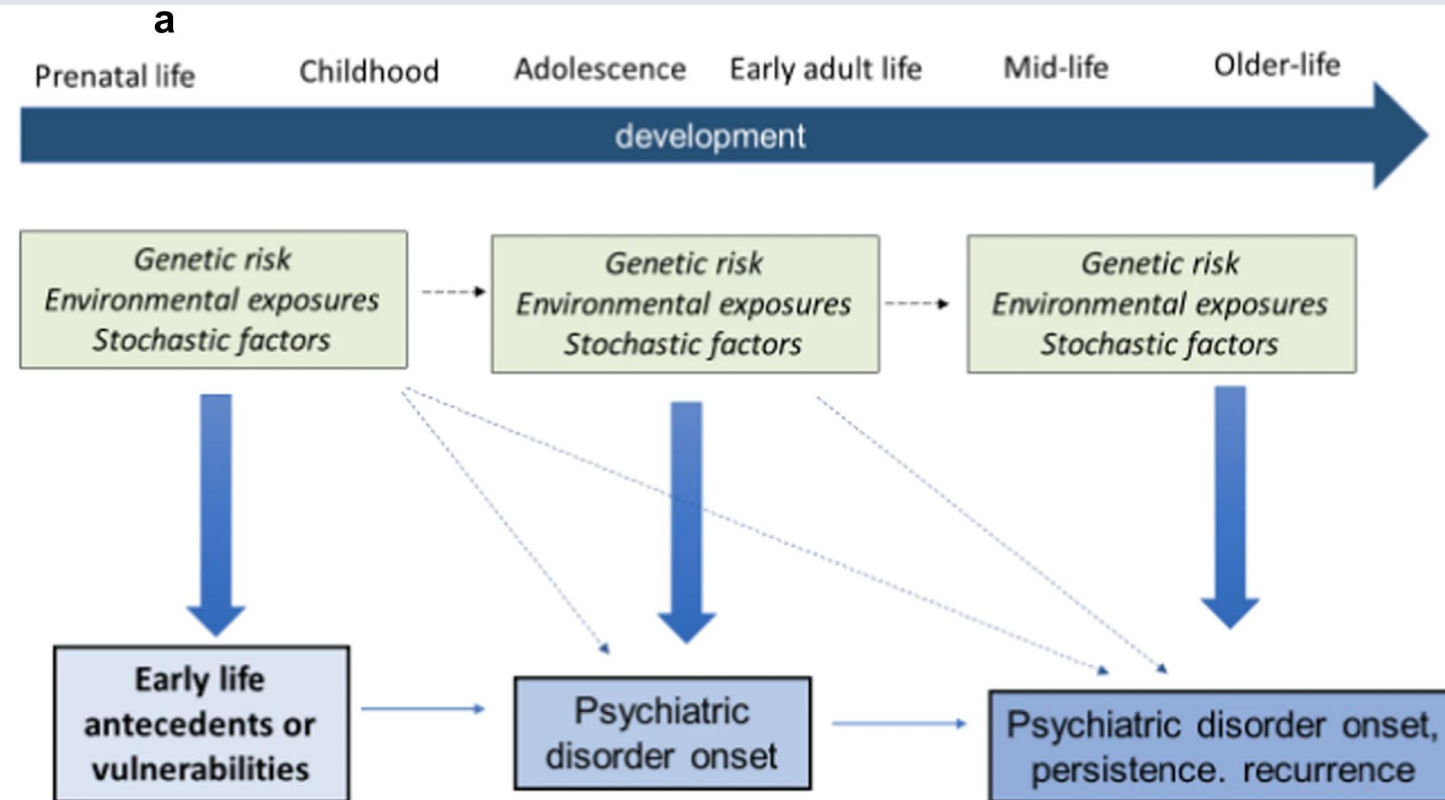
**Institute of Psychiatry,
Psychology and Neuroscience**
Department of Psychology

South London and Maudsley 
NHS Foundation Trust

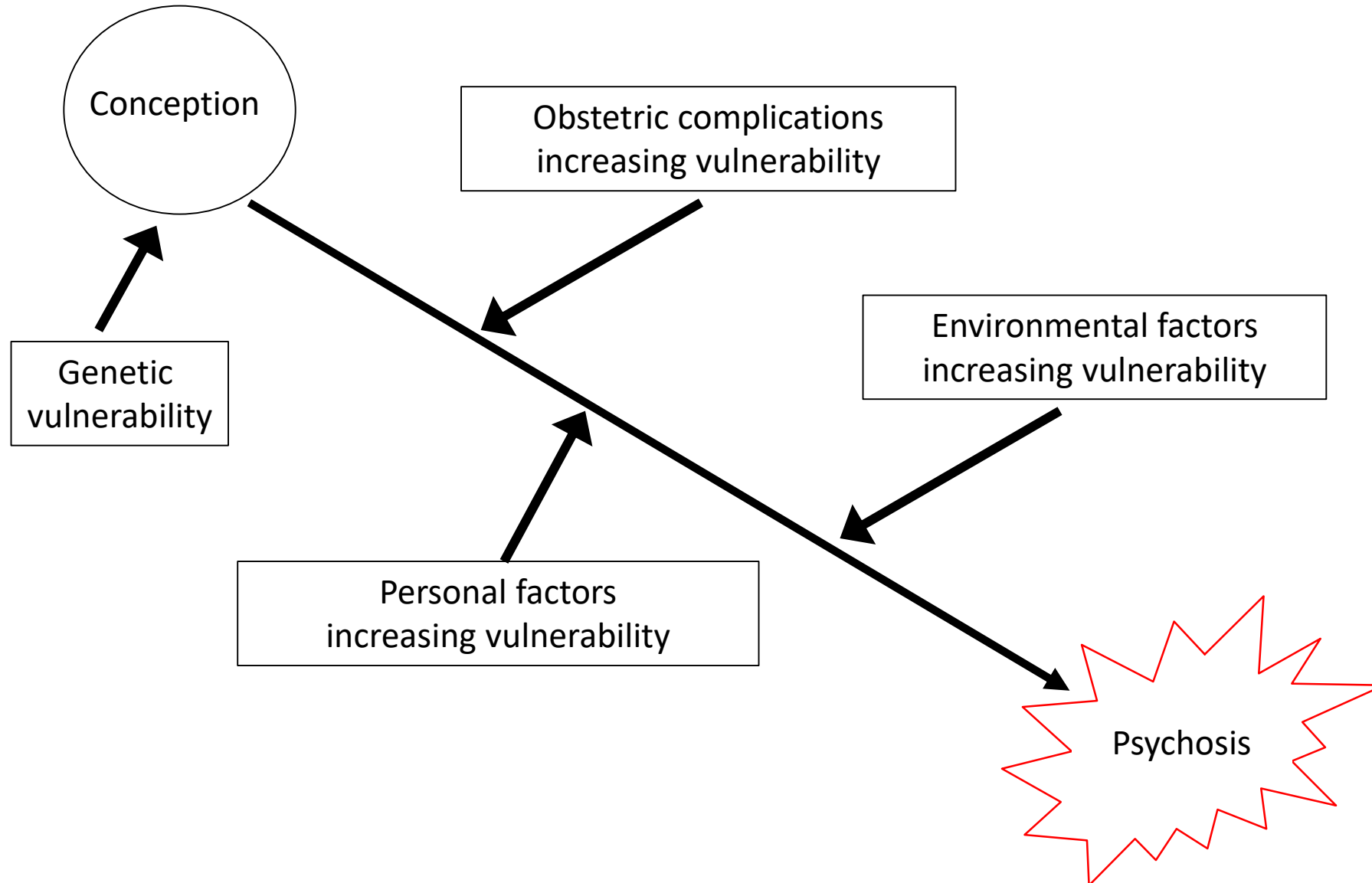
KU LEUVEN

KING'S
College
LONDON

Early Intervention - Developmental perspective in psychiatry



Thapar & Riglin, Molecular Psychiatry, 2022



Children & young people

Mental health problems often develop early

1/10

children
aged 5-16 have
a diagnosable
condition



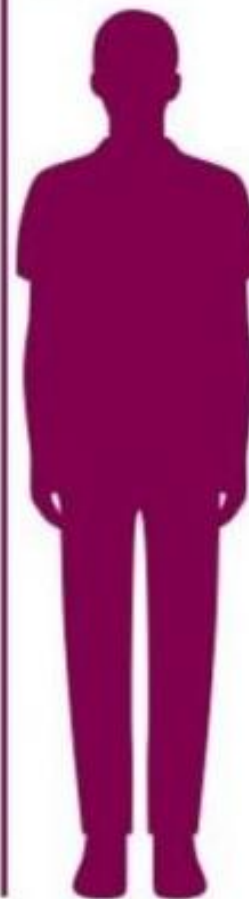
1/2

of all mental
health problems
are established
by the age of 14

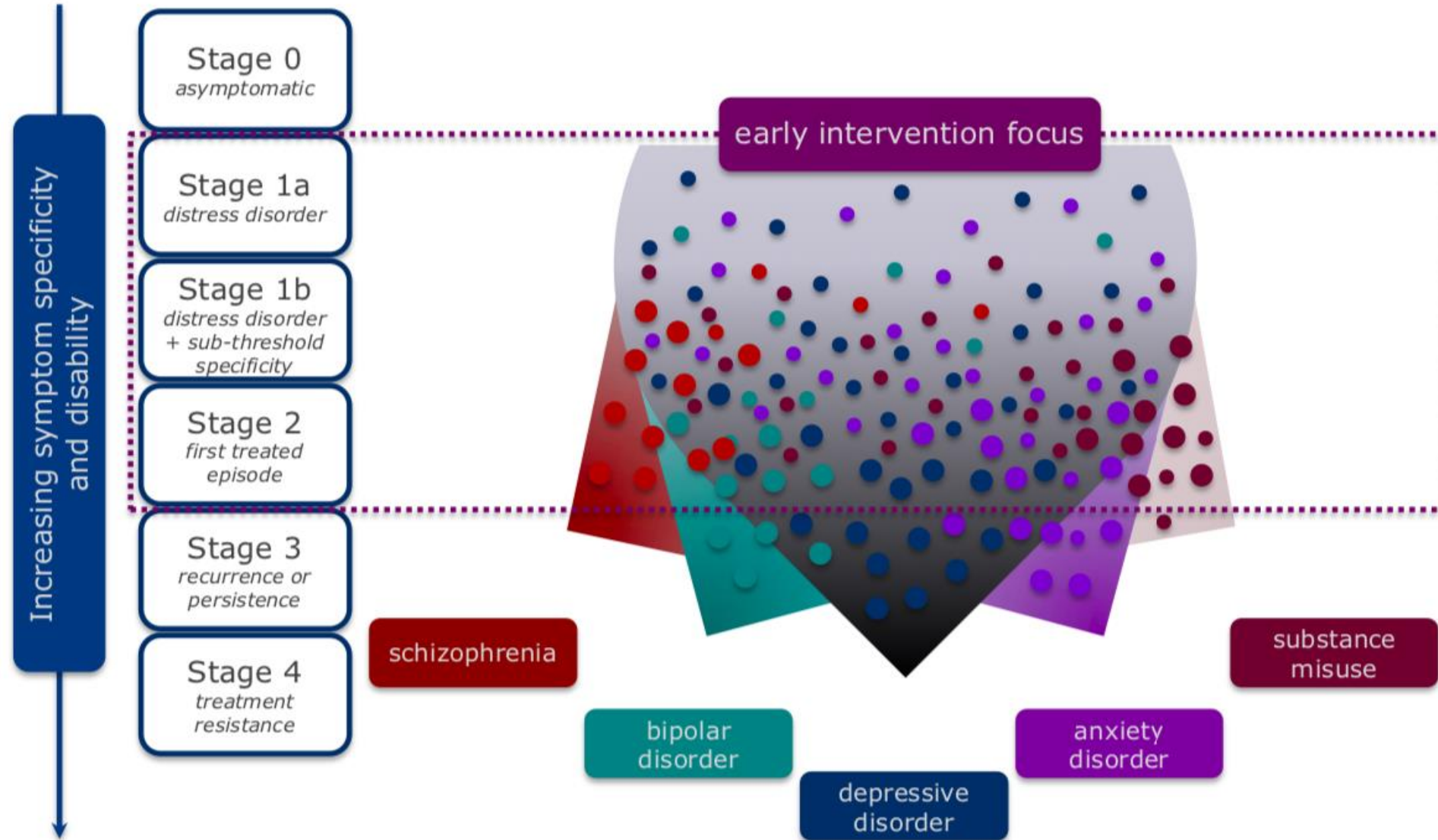


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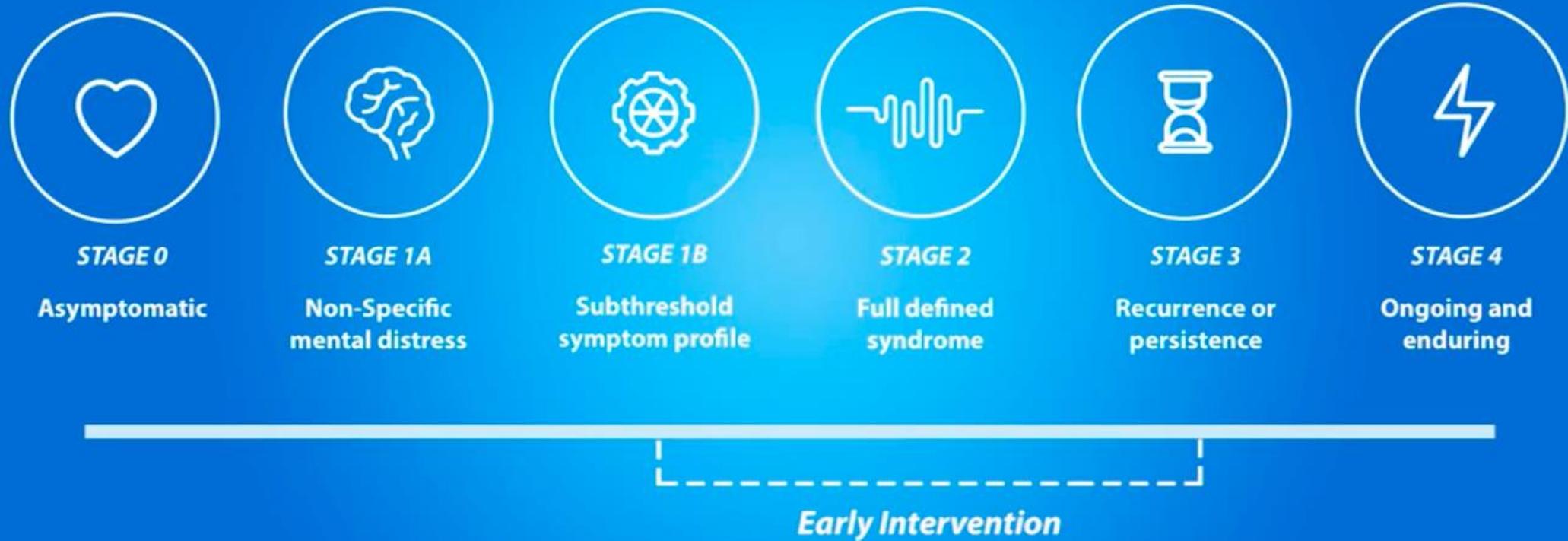
of all mental
health problems
are established
by the age of 24



CLINICAL STAGING: DIAGNOSTIC UTILITY AND STEPWISE CARE

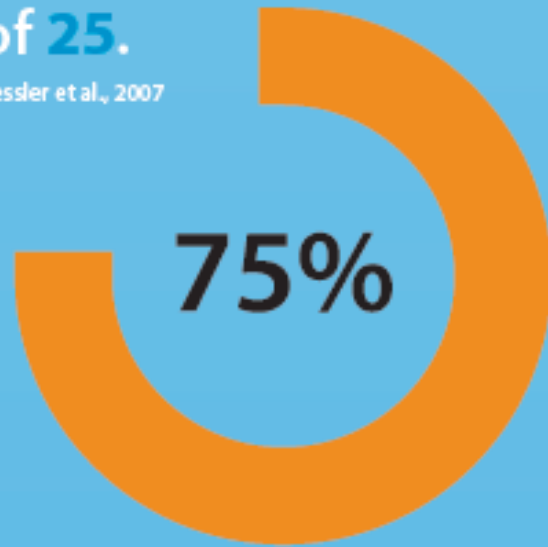


Clinical Staging Model



75% of all mental health disorders start before the age of **25**.

Kessler et al., 2007



Evidence-based, early intervention, targeted to young people, creates significant personal, social and economic benefits.

Cost of illness, Ernst and Young, 2012

PERSONAL



SOCIAL



ECONOMIC





At first contact with early intervention in psychosis services between **46 and 78% of the young people are not in employment, education or training (NEET)** (Fusar-Poli et al. 2013, Tognin et al 2019).



NEET early on in life are more likely to be NEET later in life → higher risk of chronic unemployment and socio-economic disadvantage (ONS 2010)



Even with adequate antipsychotics only 1/3 of patients see a reduction of symptoms by half (Samara et al 2019). When CBTp is added further 10% improvement.



53% experience paranoia; 48% hallucinations; 50% insomnia; 65% anxiety; 68% worry; 12% suicidal thought with intent (Freeman, Taylor et al 2019)

Multidimensional Outcomes



Figure from Hickie et al 2019

Early intervention and ongoing treatment are effective and can have a significant impact on outcomes

Treatment requires a range of evidence-based interventions used in combination, selected by the person and their family in collaboration with a clinical team and guided by the clinical staging model.

McGorry et al., 2006



**Can digital
technology play a
role in addressing
the size and scale of
mental health crisis
worldwide?**



“They weren’t human, they popped or exploded... [People] were afraid that if they stood near one in a thunderstorm they might get hit by lightning. Even if there wasn’t any storm, the electric wiring might give them a shock. When I saw a **telephone** in some hotel or office, they stood away from it or picked it up gingerly.”

Devices are seen as an opportunity to *enhance* care rather than to *replace* traditional forms of care

Mohr et al 2017



Digital therapeutics: National Health Service Stepped care



4. Blended care: alongside Clinical/ Health Psychologist



3. Guided self help – low intensity therapist or non-psychologist Health Care Professional



2. Stand alone device



1. Preventative digital therapeutics





Journal of Psychiatric Research

Volume 145, January 2022, Pages 35-49



mHealth technology to assess, monitor and treat daily functioning difficulties in people with severe mental illness: A systematic review

Leila Jameel^{a b}  , Lucia Valmaggia^{a b c}, Georgina Barnes^{a b}, Matteo Cella^{a b}

[Show more](#) 

- Smartphones were the most popular mHealth device
- Acceptable and feasible
- Used to bridge links between clinical settings and the patient's everyday life
- Preliminary findings suggesting it can support functional recovery by:
 - augmenting an intervention (in the moment)
 - simplifying the assessment (in the moment and passive forms)
 - increasing monitoring frequency and/or providing more detailed information.
- Barriers to implementation:
 - user-friendly given the cognitive difficulties
 - governance and security
- Limitations:
 - Caucasian young to middle-aged adults from Western countries

#chatsafe global

In 2018, Orygen developed the world's first evidence-based guidelines for young people to communicate safely online about suicide. In collaboration with a number of international organisations, we have now translated guidelines for young people across the world.



**Brazil –
Portuguese**



**Canada –
English Edition
Two**



**Canada – French
Edition Two**



Finland – Finnish



**Hong Kong –
Chinese**



Italy – Italian



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»

MOST

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Mental health support when and where you need it.

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Learn about MOST




Illustration by Marc Pearson

Virtual reality and mental health

19

MOST found it to be a feasible, acceptable and safe online clinical service for young people with mental ill-health.

Studies identified significant improvements in levels of

- psychological distress,
- perceived stress,
- psychological wellbeing,
- depression,
- loneliness,
- social support and
- self-competence.



Alvarez-Jimenez et al several papers

Virtual reality

Morton Heilig developed the first commercial VR system in 1956.

1994 first used in psychological interventions (North and North, 1994).

1950s

1960s

1970s

1980s

1990s

2000s

2010s

Ivan Sutherland and Bob Spoull's created the head-mounted display in 1967.

KCL VR LAB

2012 Oculus prototype

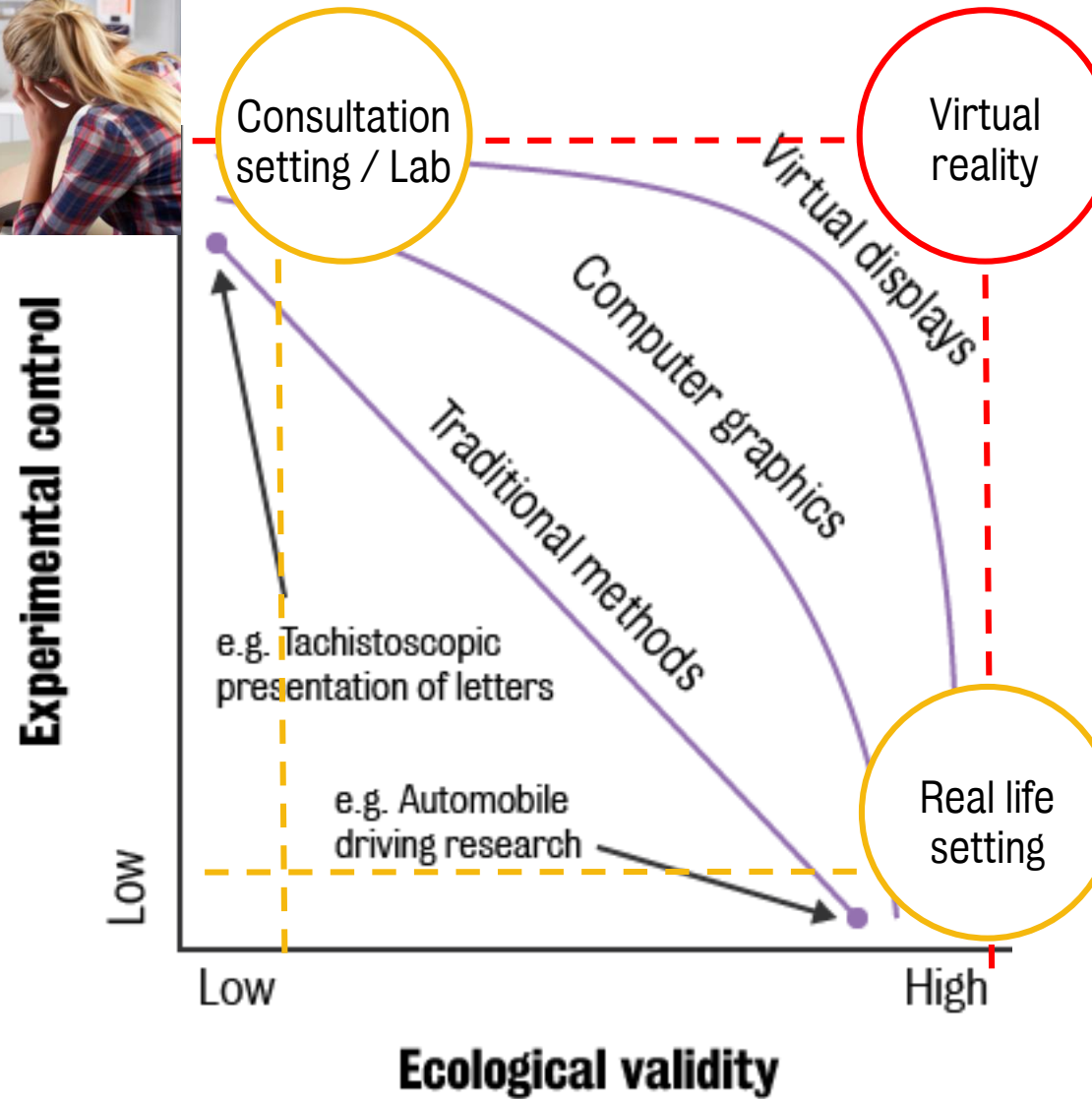
2014-2015 Cardboard VR; Oculus DK2; Gear VR; Others

2016 Oculus Rift; Sony; HTC Vive and others

2018 Oculus-Go and many other wireless devices



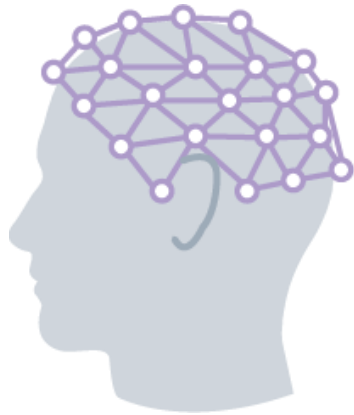
VR has high ecological validity



Loomis et al. (1999)

How is VR used in psychology?

Experimental psychology



Aims to understand human cognitive processes, such as sense of presence, perception or proprioception

Neuropsychology



Aims to assess cognitive functions, such as memory or planning

Clinical psychology



Aims to assess and treat mental health disorders

Virtual reality:

- enables the assessment of cognitive functioning in real time
- enables the assessment of symptoms as they occur
- typically used as an exposure technique
- helps the patient to build up sufficient coping strategies in a safe environment
- enables a tailored intervention with virtual reality assisted therapy



Valmaggia et al 2016; Freeman et al 2017, Bell et al 2020

Safety and ethical concerns



Virtual reality has been shown to be a safe tool, suitable for children, teenagers, adult including when experiencing mental health problems.



Brien et al. (2011); Josman et al. (2008); Parsons et al. (2007); Valmaggia et al. 2016)

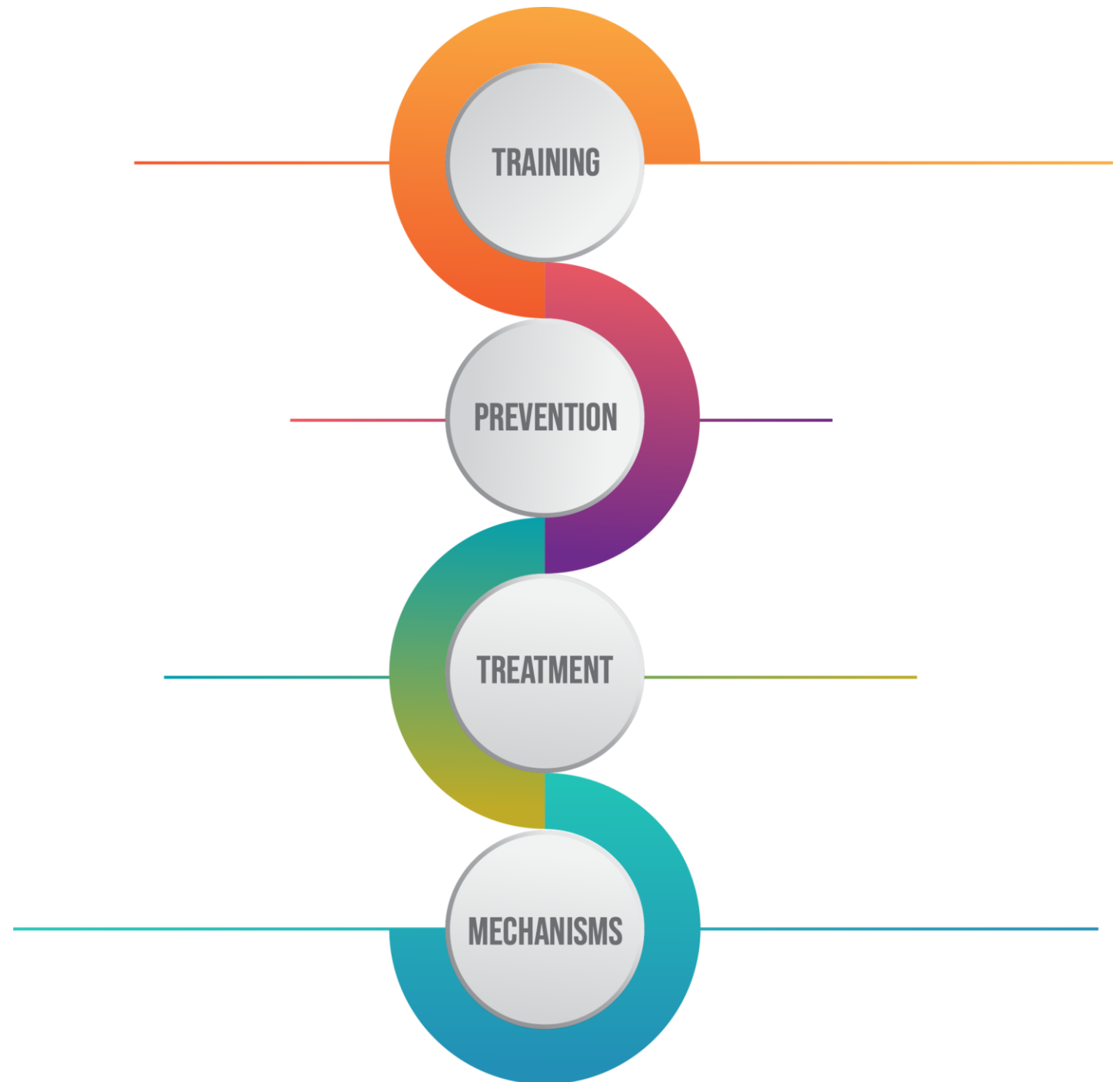
KCL IoPPN

Virtual Reality Lab



Head of the Lab: Prof Lucia Valmaggia

VR Developer: Jerome Di Pietro



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Department of Psychology

Department of Child & Adolescent Psychiatry

Department of Psychological Medicine

Department of Addictions Sciences

Department of Health Service and Population Research

School of Biomedical Engineering & Imaging Sciences

Department of Political Economy

University of Bologna, Italy

University of Padova, Italy

KU Leuven, Belgium

Bochum University, Germany

South London and Maudsley NHS Trust

King's College Hospital

Industrial partners



- Eating disorders
- Agoraphobia with or without panic disorder
- Phobias
- Anxiety disorders
- Social anxiety
- PTSD
- Psychosis
- Autism
- Depression

Main findings

VR can be used to assess symptoms in real time

VR more effective than treatment as usual

VR as effective or more than cognitive behaviour therapy

Limitations:


Older studies High drop-out rates (too confronting, or cyber-sickness)

Small sample sizes and lacked statistical power

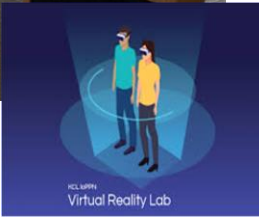
Valmaggia et al 2016; Freeman et al 2017, Bell et al 2020

Co-production





Help young
autistic people
with anxiety in
social situations



Vignette

0.0

Volume

1.0

Summoned to Head teacher's office
Hostile

Notes:

After you've spoken your prompt, the participant should move towards the teacher at the front of the room. This will trigger a line of dialogue

Therapist Prompt
Speak this text when ready

"You've been called to the head teacher's office who would like to speak with you. Please move into the office, towards the desk"

Click when ready to proceed

Next



Aggression
regulation in
young people in
the forensic
setting





CHAT GPT
Generative
Pre trainer
Transformer

Acknowledgments

- Colleagues in the VR Research Lab
- BRC, NIHR
- NARSAD
- Psychiatry Research Trust
- MRC
- NIHR
- Wellcome Trust
- ESRC
- UKRI



Jerome di Pietro
VR Lab Developer

magic horizons
my better life

bodyswaps

VIRTUALVARE

EMPATHETIC MEDIA

Thank you for your attention



Virtual Reality in Mental Health

New Horizons



November 9 & 10, 2023



University Medical Center, Groningen



Research



Technology



Implementation



Treatment