



ACES and PAIN MANAGEMENT: AN INTEGRATIVE APPROACH

PROF. (DR) DEEPAK RAVINDRAN

MD,FRCA, FFPMRCA, FIPP,, DMSM, DipIBLM/BSLM

HON PROFESSOR, SCHOOL OF HEALTH AND LIFE SCIENCES, TEESSIDE
UNIVERSITY

DIRECTOR, LIFESTYLE MEDICINE, PEMBROKE SURGERY/CENTRAL READING PCN

WHAT I DO NOW



2010 TO 2024
SECONDARY CARE
CONSULTANT PAIN
MEDICINE

GOING UPSTREAM

2024 AUGUST

DIRECTOR OF LIFESTYLE MEDICINE - PCN

CMO – BOUTROS BEAR

DIRECTOR – BERKSHIRE PAIN CLINIC

PAIN COACH – PEAK HEALTH

DEP EDITOR - EPAIN ENGLAND

TRUSTEE



COUNCIL MEMBER



**THE BRITISH
PAIN SOCIETY**
EXPERTISE WHERE IT MATTERS



ASSOCIATE



CMO

Boutros Bear



**VERSUS
ARTHRITIS**

Professional Advisory
Community

AMBASSADOR



Personalised
Care Institute

CLINICAL SCIENTIFIC
ADVISORY BOARD

About Curable



MyPain®



**LONG
COVID SOS**

Recognition - Research - Rehabilitation

PAIND™

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FIDES NETWORK

DR DEEPAK RAVINDRAN
THE PAIN-FREE
M.I.N.D.S.E.T



Academy of
Medical Royal
Colleges



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information accessible to
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AGENDA FOR TODAY



WHY ACES IN PAIN?



SO WHAT ELSE
DO YOU NEED
TO KNOW?



NOW WHAT
COULD/SHOULD YOU DO

WHAT IS AN ACE

CHRONIC/INTENSE/PERSISTENT
TRAUMA TO A PERSON BEFORE
AGE 18

IMPACT ON THE DEVELOPING
IMMUNE AND NERVOUS SYSTEM

TRAUMA INFORMED CARE

- HOW DO YOU DEFINE TRAUMA?

90% OF ADULTS EXPERIENCED TRAUMATIC EXPOSURES
70% OF ADULTS ACROSS 24 COUNTRIES ENDORSED LIFETIME TRAUMAS
TOTAL COSTS - NORTH AMERICA - \$748 BILLION PER ANNUM
75% ENDORSING 2 OR MORE ACEs (Goldstein et al 2024)

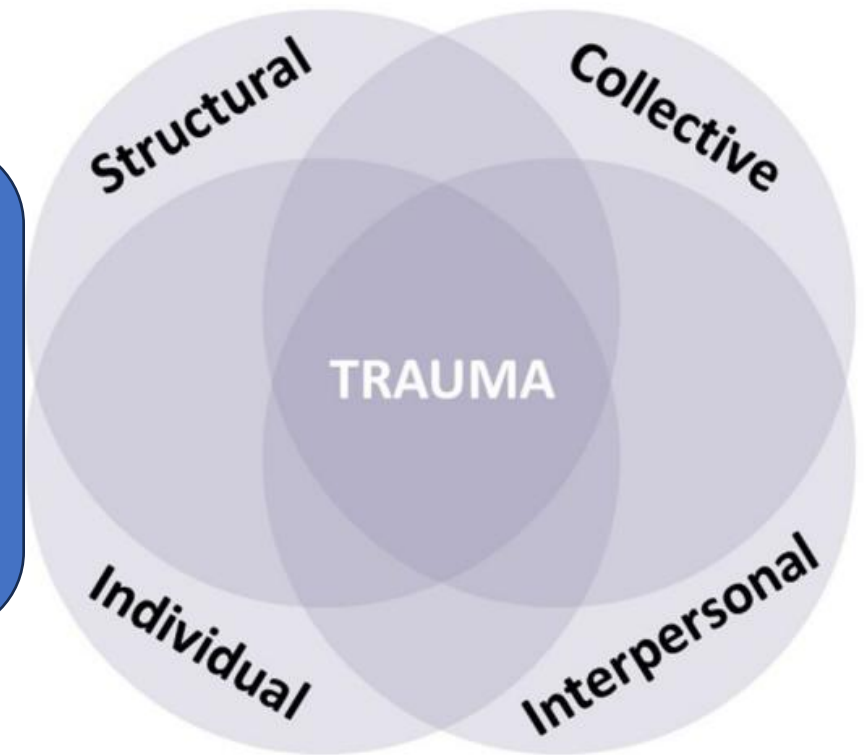


Figure 1: Intersectionality of trauma at multiple levels. © Lewis-O’Conner A, Rittenberg E, Grossman S, Levy-Carrick N 2024. Reproduced with permission. All rights reserved. Based on Ashworth et al 2023.¹⁰



Trauma is “an event, series of events, or set of circumstances experienced by an individual as physically or emotionally harmful or life threatening with lasting adverse effects on the individual’s functioning and mental, physical, social, emotional, or spiritual well-being” SAMHSA

TRAUMA INFORMED CARE

A **program, organization, or system** that is trauma-informed realizes the widespread impact of trauma and understands potential paths for healing; recognizes the signs and symptoms of trauma in staff, clients, and others involved with the system; and responds by fully integrating knowledge about trauma into policies, procedures, practices, and settings.

SAMHSA 2012 Pg4

TRAUMA : A normal response
to abnormal events

3 common themes

- Person was unprepared
- Trauma was unexpected
- Nothing could be done to prevent it

TRAUMA IS NOT WHAT
HAPPENS TO YOU: IT IS WHAT
HAPPENS INSIDE OF YOU WHEN
TRAUMA HAPPENS TO YOU



TRAUMA IS PROPERTY OF
WHAT HAPPENED IN THE
PAST AND WHAT IS
HAPPENING IN THE
PRESENT. IT IS RELATIONAL.



The 4 x CPRs of Trauma informed care

The Cs	The Ps	The Rs
<ul style="list-style-type: none">• Calm• Contain• Care• Cope	<ul style="list-style-type: none">• Physical• Psychological• Performance• People	<ul style="list-style-type: none">• Realise• Recognise• Respond• Resist

TIC IN THE UK – TAPCARE STUDY



No UK-, England-, or NHS-wide strategy nor funding commitment.

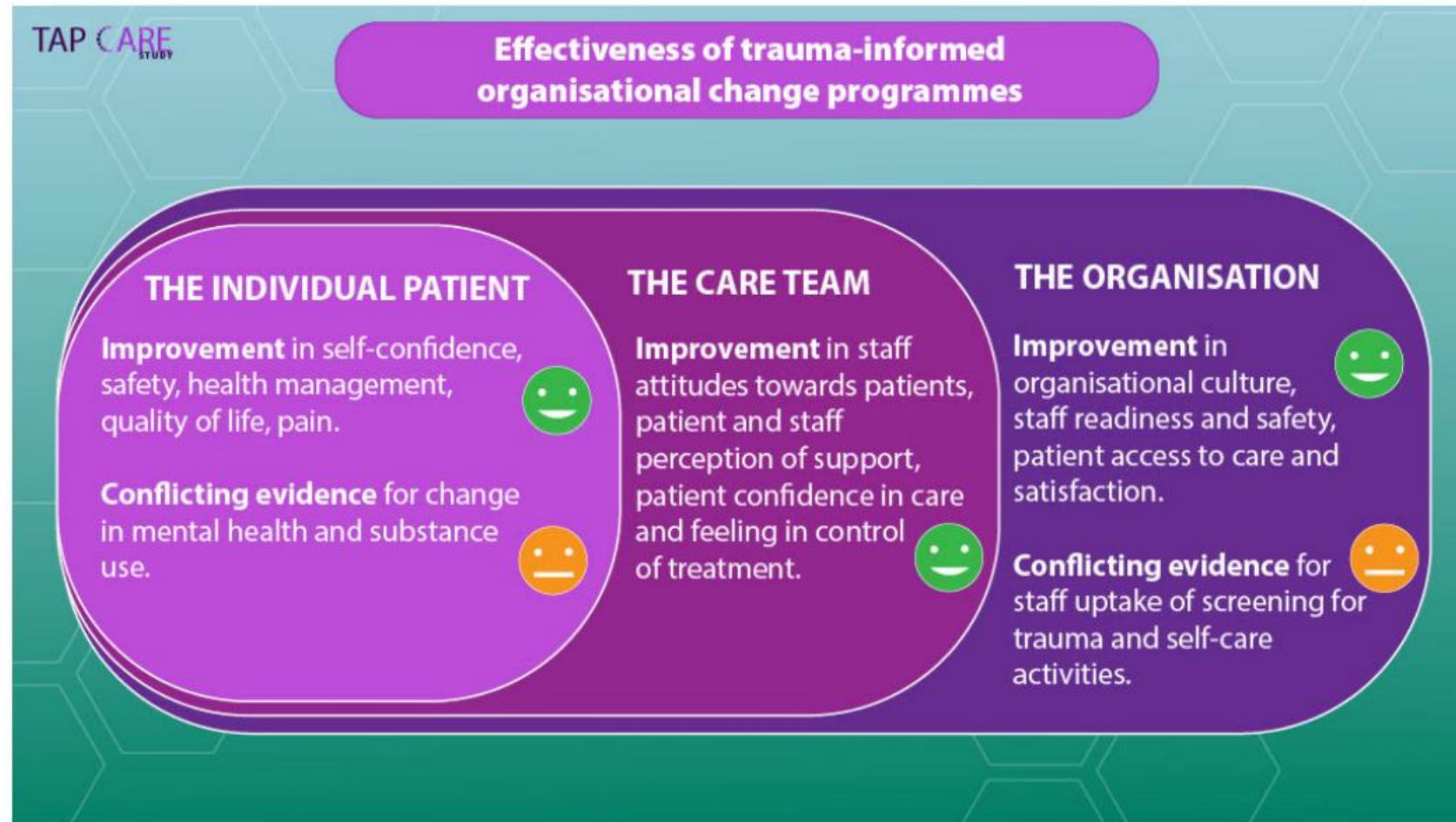


Trauma-informed approaches in the UK - piecemeal implementation, with a nation-wide strategy and leadership visible in Scotland and Wales and more disjointed implementation in England.



Trauma-informed leads wanted enhanced coordination between organisations and regions. local and national government backing is essential

TIC IN THE UK



Emsley, E., Smith, J., Martin, D. et al. Trauma-informed care in the UK: where are we? A qualitative study of health policies and professional perspectives. *BMC Health Serv Res* 22, 1164 (2022). <https://doi.org/10.1186/s12913-022-08461-w>

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The need for TIC in Pain care – present issues

Expect analgesic failure; pursue analgesic success

BMJ 2013 ; 346 doi: <https://doi.org/10.1136/bmj.f2690> (Published 03 May 2013)

Cite this as: BMJ 2013;346:f2690

Moore et al. 2013

30% of patients will get 30% benefit

Every surgery when compared to placebo has not proved to be superior. Could surgery be the ultimate placebo?

Ian Harris 2016

Effect of Intensive Patient Education vs Placebo Patient Education on Outcomes in Patients With Acute Low Back Pain: A Randomized Clinical Trial

Traegar et al JAMA neurology 2018

Cochrane Database of Systematic Reviews | Intervention

New search

Psychological therapies for the management of chronic pain (excluding headache) in adults

✉ Amanda C de C Williams, Emma Fisher, Leslie Hearn, Christopher Eccleston Authors' declarations of interest

Version published: 12 August 2020 Version history

<https://doi.org/10.1002/14651858.CD007407.pub4>

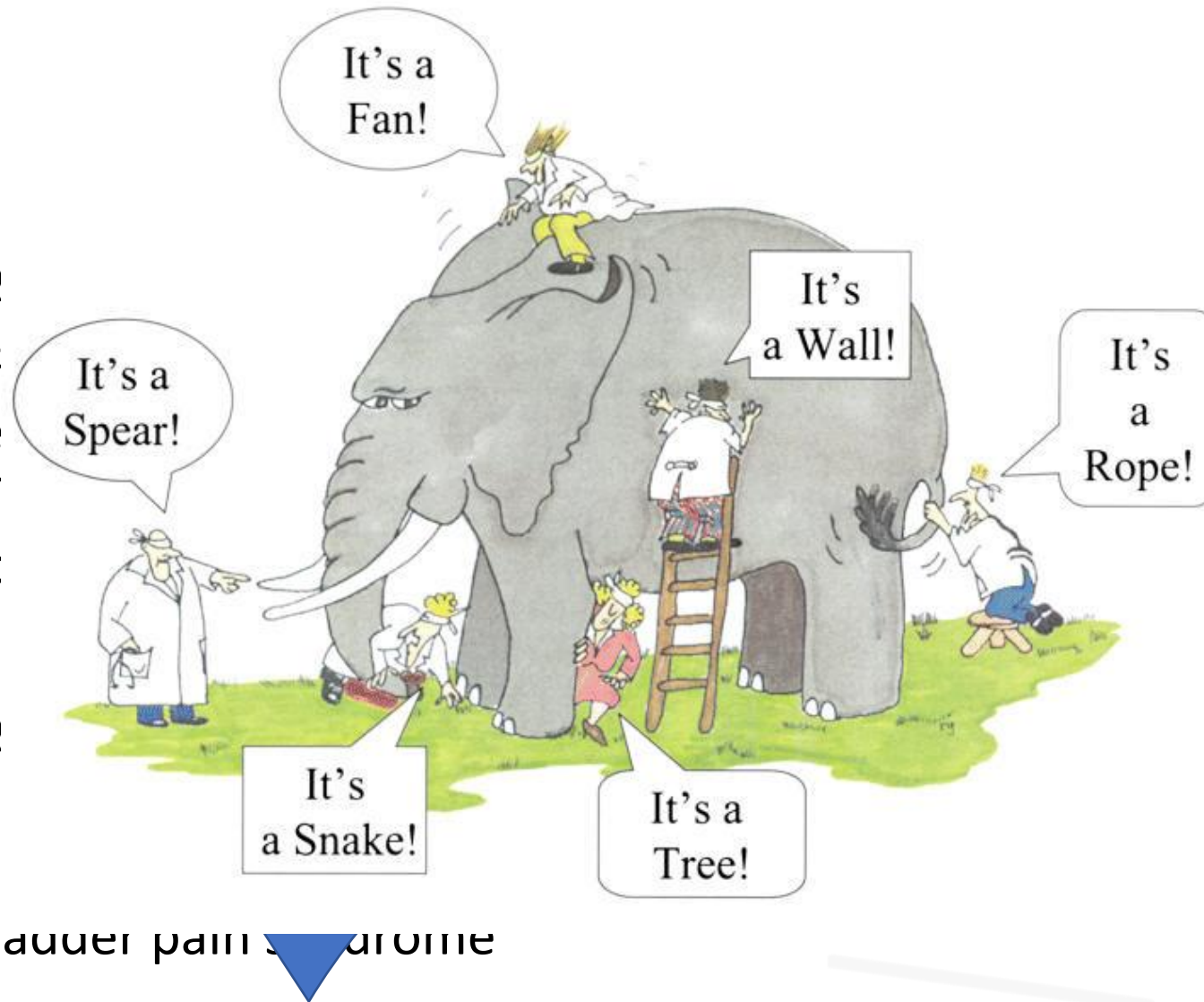
CBT – moderate quality evidence – slightly less pain and distress

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Amy

- 52 y/o, 7 y
- Numerous
- Physiotherapy courses
- Pain clinic
- Rx- FJI/Ep
- Neurology
- Gastro – I
- Urology – cystitis/Bladder pain syndrome



2015 discectomy
2013
ACJ 2015
same problem
and awaiting Hip

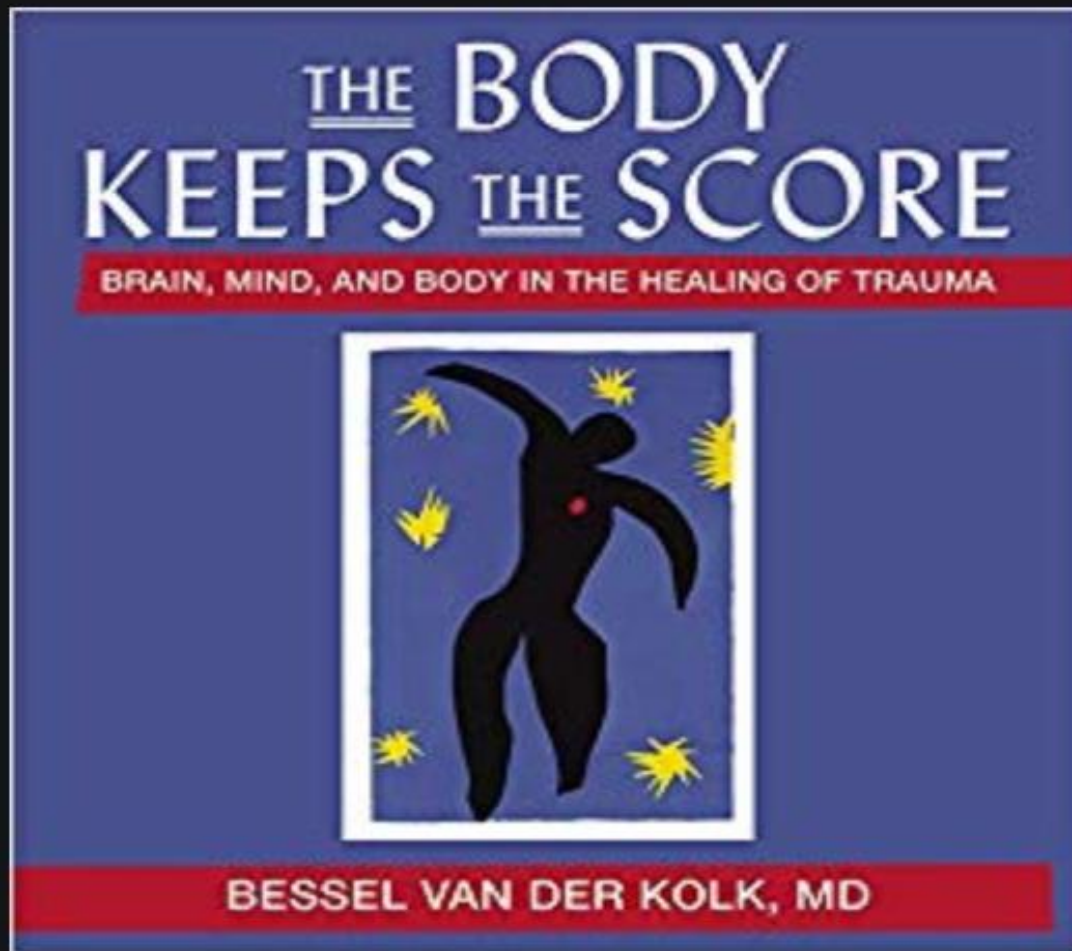
WCP

DM

uding anti-

5

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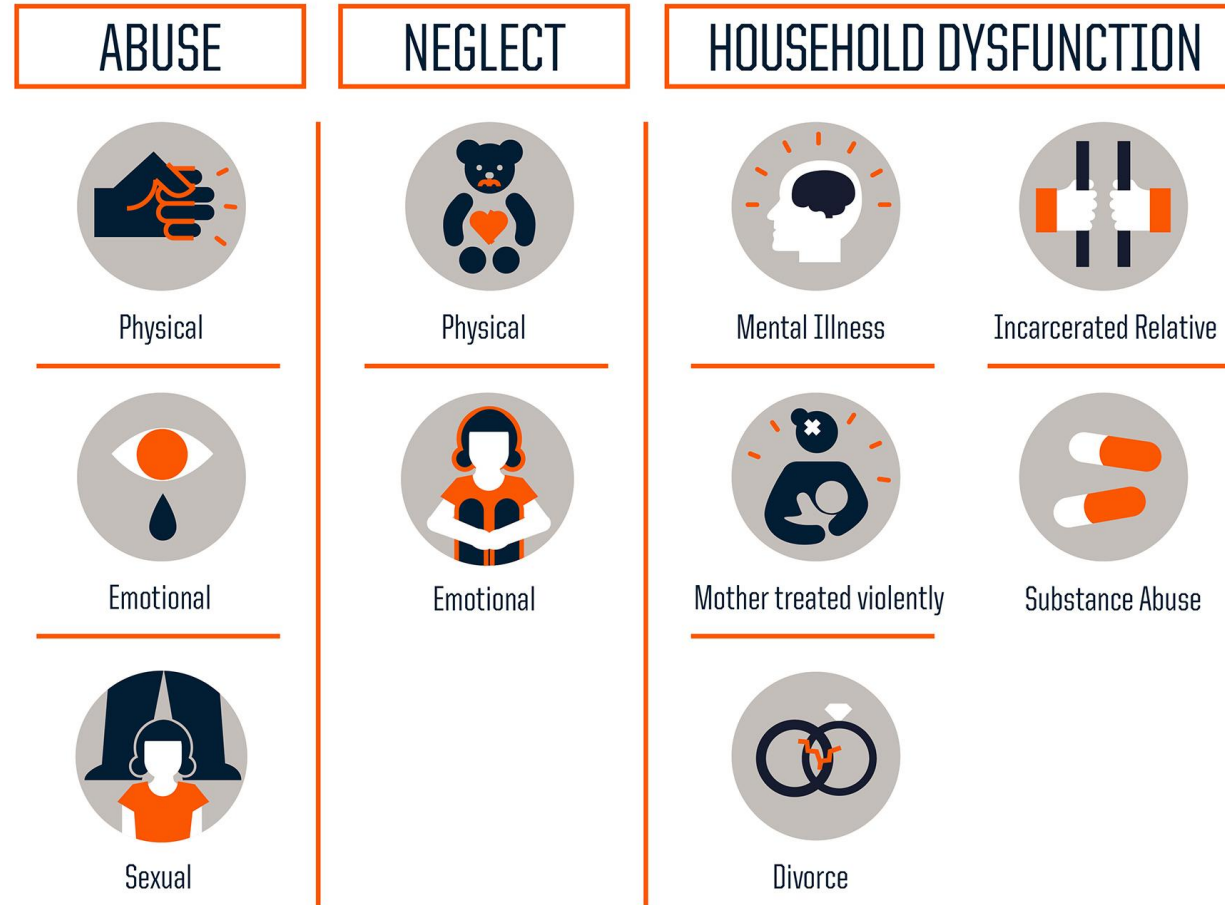
FLAWED CARTESIAN MODEL

NOTHING IN BIOLOGY MAKES SENSE EXCEPT IN THE LIGHT OF EVOLUTION Dobzhansky 1973

ACEs study 1996

Did not include

- DOMESTIC ABUSE AND IPV
- Bullying, teenage angst, traumatic experience early adulthood, bereavement, trauma in adulthood
- COVID19 AND LOCKDOWN/ISOLATION



How many adults reported each ACE in 2017?

Child maltreatment



Verbal
abuse
20%



Physical
abuse
16%



Sexual
abuse
7%

Neglect was
measured for the
first time in 2017.
Most people
who reported
neglect had
multiple ACEs.



Emotional neglect
7%



Physical neglect
4%

Household ACEs



Parental
separation
25%



Mental
illness
18%



Domestic
violence
17%



Alcohol abuse
13%



Drug abuse
6%



Incarceration
4%

**For every 100 adults in Wales,
50 had at least one ACE and 14 had four or more**



WHAT THAT MEANS FOR EVERY 100 PEOPLE

16-20% > 4 ACES

1 IN 6 SMOKING
(3 TIMES MORE)

1 IN 6 ALCOHOLIC
(10 TIMES MORE)

1 IN 30 USE iv
DRUGS (16 TIMES
MORE)

1 IN 6 HAS HEART
DISEASE (2.5
TIMES MORE)

1 IN 5 ATTEMPT
SUICIDE (20
TIMES MORE)

Table 2 Changes in risk of disease development with increased history of ACE using Cox regression survival analysis.

	0 ACEs (ref.)		1 ACE			2–3 ACEs			4+ ACEs		
	n	P	HR	95% CIs	P	HR	95% CIs	P	HR	95% CIs	P
Cancer	3881	<0.001	0.75	0.49–1.14	0.171	1.02	0.66–1.59	0.925	2.38	1.48–3.83	<0.001
CVD	3882	0.020	1.24	0.73–2.12	0.424	1.68	0.95–2.94	0.073	3.11	1.56–6.24	0.001
Diabetes type 2	3876	<0.001	1.13	0.80–1.87	0.524	1.22	0.80–1.87	0.346	2.99	1.90–4.72	<0.001
Stroke	3882	0.005	1.63	0.74–3.60	0.229	1.91	0.81–4.48	0.139	5.79	2.43–13.80	<0.001
Respiratory disease	3879	<0.001	1.22	0.77–1.94	0.394	1.83	1.15–2.91	0.010	3.50	2.07–5.91	<0.001
Liver/digestive disease	3879	0.004	1.44	0.99–2.10	0.059	1.45	0.94–2.23	0.093	2.50	1.53–4.08	<0.001
Any disease	3866	<0.001	1.17	0.95–1.42	0.134	1.38	1.11–1.73	0.004	2.76	2.13–3.58	<0.001

ACE, adverse childhood experience (see Supplementary data, Box for definitions); CVD, cardiovascular disease; ref, reference category for Cox regression; HR, adjusted hazard ratio; 95% CI, 95% confidence intervals). See text for additional analytical details.

The impact of adverse childhood experiences on multimorbidity: a systematic review and meta-analysis



systematic review and meta-analysis, we aimed to identify, synthesise, and quantify the current evidence linking ACEs and multimorbidity

25 STUDIES WITH > 370000 PARTICIPANTS

>1 ACE – 48.1% OF POPULATION

RATES OF MULTIMORBIDITY 34.5%

8 STUDIES – FOR META-ANALYSES >197000

SIGNIFICANT DOSE DEPENDANT RELATIONSHIP

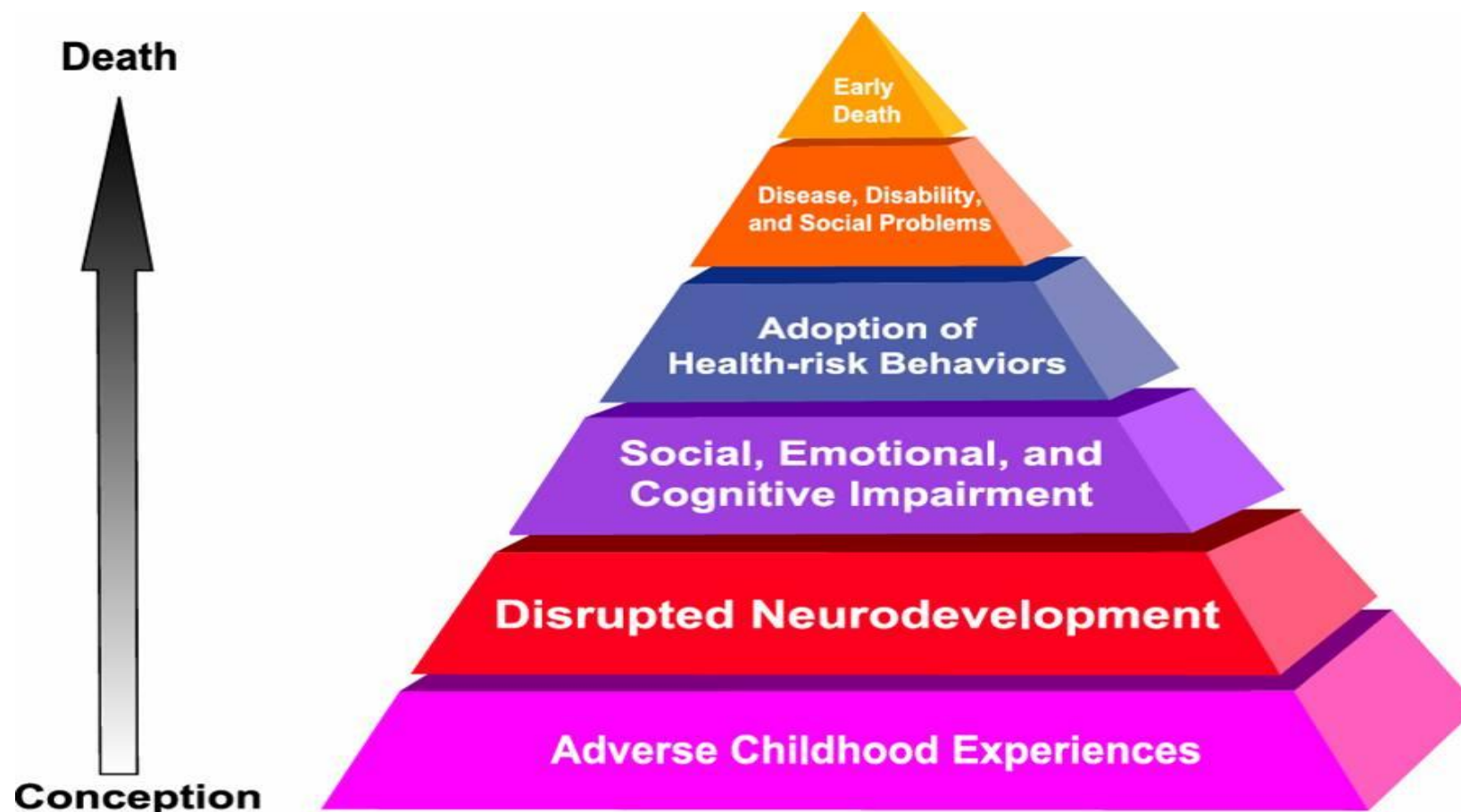
EVERY EXTRA ACE – 12.9% INCREASE IN MULTIMORBIDITY ODDS

Senaratne, D. N. S., Thakkar, B., Smith, B. H., Hales, T. G., Marryat, L., & Colvin, L. A. (2024). The impact of adverse childhood experiences on multimorbidity: a systematic review and meta-analysis. *BMC medicine*, 22(1), 315.
<https://doi.org/10.1186/s12916-024-03505-w>

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The ACE pyramid – DEATH 20 YRS EARLIER



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

DR DEEPAK RAVINDRAN, EMDR June 2023

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SO WHAT?

WHY IS THIS KNOWLEDGE RELEVANT TO HCPs?

WHY DOES IT HAPPEN?



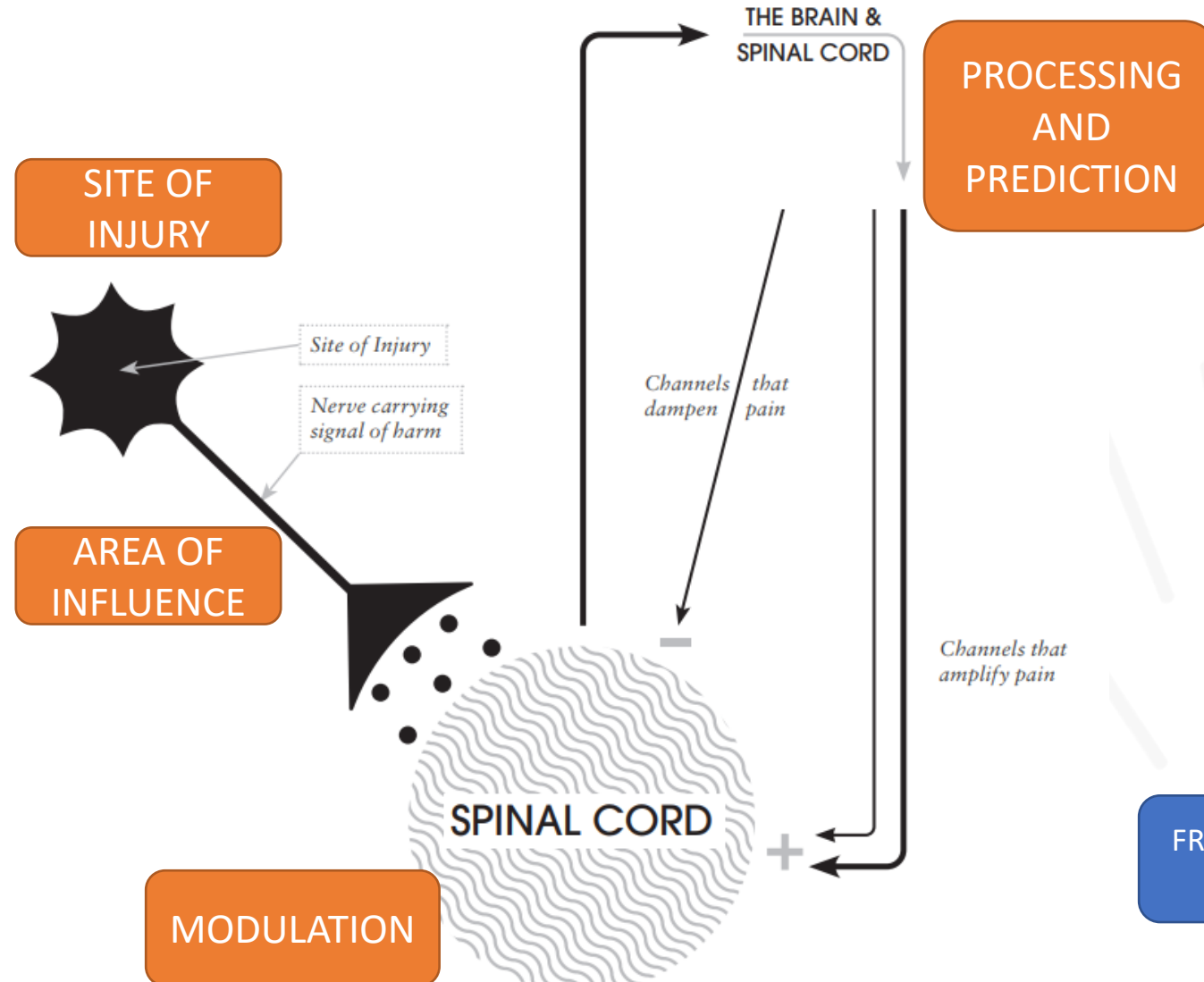
**ALL VERY RELEVANT AND ALSO
APPLICABLE IN CHRONIC PAIN
MANAGEMENT**

- BIOLOGICAL MECHANISMS
- EMOTIONAL FACTORS
- PSYCHOLOGICAL FACTORS
- HYPERVIGILANCE/FEAR AVOIDANCE
- MICROGLIA ACTIVATION – PROINFLAMMATORY CYTOKINES

PREDICTION AND PROTECTION MACHINE – BAYESIAN MODEL



WHAT ELSE DOES THE
BRAIN SEEK TO PROTECT
AGAINST?
INTERNAL
EXTERNAL
THREATS OF THE DISTANT
PAST - ACES



FROM THE PAIN FREE MINDSET
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RACER SURVEY



Reading ACE and
Resilience survey

Assessing the
prevalence of ACEs in
patients attending RBH
complex pain service

10 week period from
September to
November end 2018

150 questionnaires, 134
completed

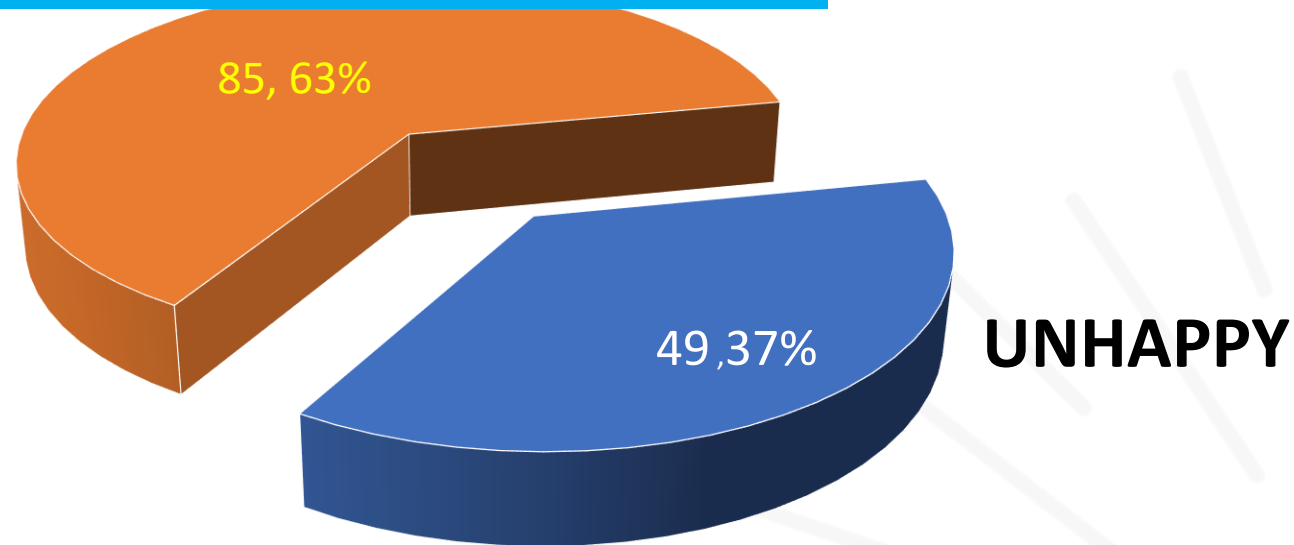
Common comorbidities
– asthma, HTN, IBS,
anxiety, depression and
panic attacks

DID YOU HAVE A HAPPY CHILDHOOD?



>4 ACEs – 73.4%

**MOST COMMON ACEs IS EMOTIONAL ABUSE AND
NEGLECT - >75%**



Tidmarsh LV, Harrison R, **Ravindran D**, Matthews SL, Finlay KA. The Influence of Adverse Childhood Experiences in Pain Management: Mechanisms, Processes, and Trauma-Informed Care. *Front Pain Res (Lausanne)*. 2022;3:923866. Published 2022 Jun 10. doi:10.3389/fpain.2022.923866



- 1) An overview of the relationship between ACEs and chronic pain**
- 2) Identifying biopsychosocial mechanisms through which ACEs may increase risk of persistent pain**
- 3) Highlighting the impact of ACEs on patient adherence and completion of pain management treatment**
- 4) Providing practical clinical implications for pain management**

What is the association between childhood adversity and subsequent chronic pain in adulthood? A systematic review



2009-2022, SYSTEMATIC REVIEW
68 STUDIES - 196 130 PARTICIPANTS
15 DIFFERENT TYPES OF CHILDHOOD ADVERSITY
10 DIFFERENT CHRONIC PAIN DIAGNOSES
STRONG ASSOCIATION - BETWEEN ACES AND CHRONIC PAIN IN ADULTHOOD
ASSESSMENT OF ACES RECOMMENDED
?PREVENT ACES -? REDUCE THE GENESIS

Nicolson, K. P., Mills, S. E. E., Senaratne, D. N. S., Colvin, L. A., & Smith, B. H. (2023). What is the association between childhood adversity and subsequent chronic pain in adulthood? A systematic review. *BJA open*, 6, 100139.

<https://doi.org/10.1016/j.bjao.2023.100139> DR DEEPAK RAVINDRAN - EMDR june 2025

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Childhood trauma, PTSD/CPTSD and chronic pain: A systematic review



295 RECORDS – 13 STUDIES – 4 STUDIES
SUPPORT SPECIALIZED PTSD/CPTSD TREATMENT
SUPPORT TRAUMA-INFORMED PAIN MANAGEMENT IN ROUTINE CARE.

Karimov-Zwienenberg, M., Symphor, W., Peraud, W., & Décamps, G. (2024). Childhood trauma, PTSD/CPTSD and chronic pain: A systematic review. *PloS one*, 19(8), e0309332.
<https://doi.org/10.1371/journal.pone.0309332>

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Impact of adverse childhood experiences on analgesia-related outcomes: a systematic review

2009-2023, SYSTEMATIC REVIEW
66 STUDIES – 137,395 PARTICIPANTS

use of analgesics (n=12),
analgesic side-effects (n=4),
substance misuse (n=45), lifetime drug overdose (n=2),
endogenous pain signalling (n=4), and other outcomes (n=2)

STRONG ASSOCIATION - greater use of analgesic medication, higher incidence of analgesic medication side-effects, greater risk and severity of substance misuse, greater risk of drug overdose, and greater risk of attempted suicide in opioid dependency.

ASSESSMENT OF ACES RECOMMENDED IN PAIN CLINICS

Senaratne DNS, Koponen M, Barnett KN, Smith BH, Hales TG, Marryat L, Colvin LA. Impact of adverse childhood experiences on analgesia-related outcomes: a systematic review. Br J Anaesth. 2025 Feb;134(2):461-491. doi: 10.1016/j.bja.2024.09.015. Epub 2024 Oct 22. PMID: 39438213; PMCID: PMC11775844.

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UK biobank



Population-based cohort -500,000 participants aged 40 to 69 years between 2006 and 2010 (www.ukbiobank.ac.uk).

- NHS adults - within 25 miles of the 22 assessment centres – participation rate 5%.
- Baseline assessment + Repeat assessment
- Over 300,000 invited to complete follow-up questionnaires online, in 2016 and 2019.

Dataset and measurement timeline

UK Biobank data

~ 500,000 sample
Deep phenotype
Repeat measures



Chronic Pain 2006-2010

Biopsychosocial factors 2006-2010

Child Maltreatment 2016-2017

Chronic Pain 2019-2020

Initial visit (N > 500,000) Online follow-up (N > 150,000)

10 Biopsychosocial categories:

Inflammation	Traumas
Mood	Anthropometric
Sleep	Substance use
Neuroticism	Physical activity
Socioeconomic	Social Kinship

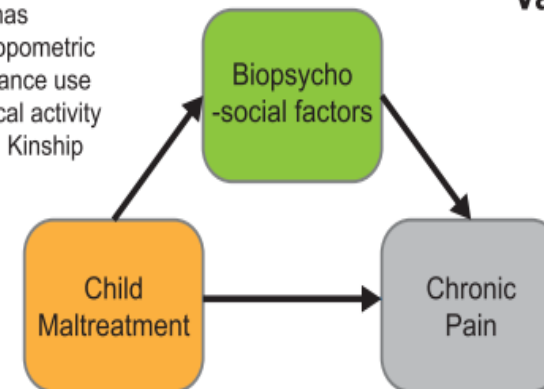
Maltreatment types:

Physical neglect
Emotional abuse
Emotional neglect
Physical abuse
Sexual abuse

Variable overview

Chronic pain types:

Back pain
Facial pain
Headache
Hip pain
Knee pain
N/S pain
S/A pain
Widespread pain



Child maltreatment elevated the risk of late-life chronic pain: a biopsychosocial framework from the UK Biobank cohort – April 2025



1. All types of childhood maltreatment, except physical neglect, significantly increase the risk of chronic pain
2. All types of chronic pain except headache were affected by ACEs.
3. Individuals with childhood maltreatment histories - more predisposed to pain conditions.
4. Biopsychosocial factors – explains 60% of the association between ACEs and Pain, with psychological factors playing a key role.

Zhao W, Lu X, Tu Y. Child maltreatment elevated the risk of late-life chronic pain: a biopsychosocial framework from the UK Biobank cohort. Pain. 2025 Apr 1;166(4):868-878. doi: 10.1097/j.pain.0000000000003417. Epub 2024 Oct 3. PMID: 39382304.

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Childhood maltreatment and chronic "all over" body pain in adulthood: a counterfactual analysis using UK Biobank – May 2025



- ❖ 118,347 – complete data available
- ❖ 5%(6207) reported chronic “all over” body pain
- ❖ 42% (49,485) reported any form of maltreatment:
 - ❖ emotional neglect (23%), physical abuse (19%), emotional abuse (16%),
 - ❖ sexual abuse (9%), Physical neglect (5%)
- ❖ the risk of chronic "all over" body pain was higher in the exposed (6.3%) than in the unexposed (4.0%)
- ❖ increases the population risk of chronic “all over” body pain by 2% to 3%
- ❖ Reducing childhood maltreatment can prevent chronic widespread pain in adulthood
- ❖ Mental health is key mediator - successfully identifying and treating mental health could help to prevent some cases of chronic widespread pain

Timmins KA, Hales TG, Macfarlane GJ; Consortium Against Pain Inequality (CAPE). Childhood maltreatment and chronic "all over" body pain in adulthood: a counterfactual analysis using UK Biobank. Pain. 2025 May 1;166(5):1204-1211. doi: 10.1097/j.pain.0000000000003457. Epub 2024 Nov 15. PMID: 39499541.

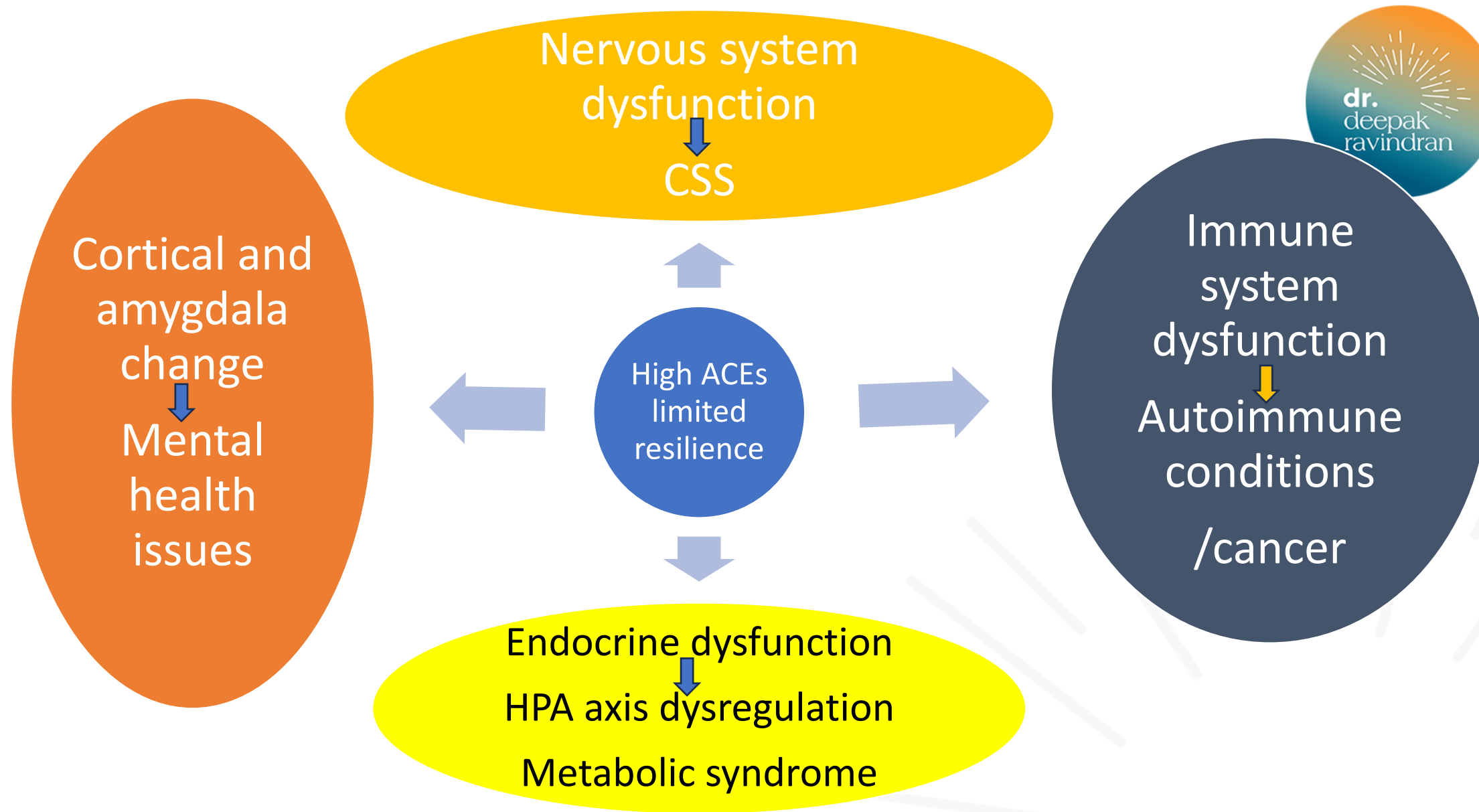
ACEs and chronic PAIN

Adult victims of childhood maltreatment report

- greater pain and headaches,
- gastrointestinal and respiratory symptoms,
- gynecological problems,
- neurological symptoms and
- overall physical problems and
- visits to health professionals.

1 ACE – 84% WITH PAIN vs 60 NORMAL POP
>2.7X CHRONIC PAIN WITH ACES

In general, individuals who report a history of abuse/neglect also report greater symptom severity and medical utilization, including increased use of surgical procedures.



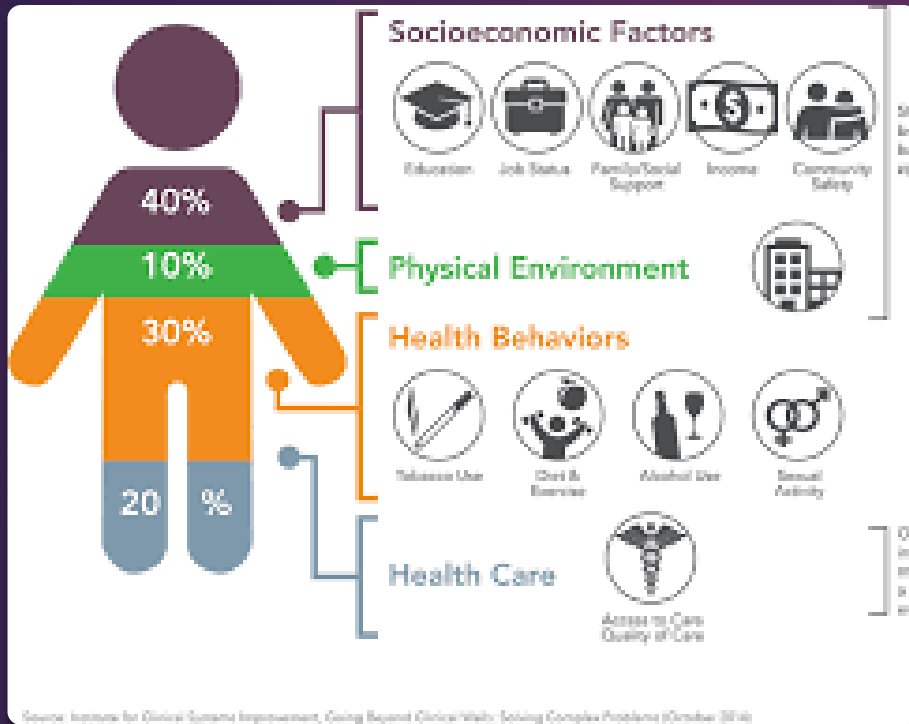


Resilience

RESILIENCE REDEFINED

Is it within themselves? Or

Is it a product of their environment and support?



A trauma informed upstream approach

NOW WHAT?

PRACTICAL APPLICATIONS AND POSSIBILITIES

Asking about ACES



Layla's story



BEING TRAUMA INFORMED/ACE AWARE



- ENABLE SYSTEMS TO KNOW ABOUT PATIENTS PROPERLY
- STRENGTHS BASED APPROACH VS DEFICIT BASED APPROACHES
- IF THE PATIENT HAS HIGH ACEs/TRAUMA and LOW SUPPORT/RESILIENCE THEN BE CAUTIOUS ABOUT
 - INVESTIGATIONS, OPIOIDS and MEDS, INTERVENTIONS
 - ROLE OF OTHER THERAPIES IN MANAGING CO EXISTING TRAUMA

For behaviour change, we need to know how people learn, their biases/ingrained beliefs/their ontology, gain trust then move them to unlearn and rethink their beliefs.

SAFETY, CHOICE, COLLABORATION, TRUSTWORTHINESS, EMPOWERMENT



Deepak's Top TIPS (TI Process Steps)

- CARE METHOD OF ASKING FOR ACES
 - C - CONSENT
 - A - ASKING
 - R - REFLECTION
 - E - ENGAGE
- Intake Questionnaire as standard prior to service access – PSEQ/GAD/PHQ/PCS/ACEs
- Environment /room changes
- Language/coaching attitude
- Signposting to various tools – setback management, curable app



Summary

- Trauma is very prevalent, very pervasive and very costly
- Adoption of TIC approach in healthcare is long overdue and critical to good care
- Strength based approach
- More research on clinical and cost effectiveness needed
- Top down and bottom-up approach needed
- Policy, education and funding provision needed



TRAUMA INFORMED

BY TON MAZZONE

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