

Developmental Trauma, Psychosis & Neurofeedback

Webinar December 9, 2020

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Introduction

This webinar has several purposes. It is to introduce our new research project, but it is also about what needs to happen across mental health services. It is also an illustration of a personal journey that created a unique set of circumstances for an idea to flourish.

I have had a long career in mental health, but it has only been in the last 5 years that a clearer picture has emerged on how best to invest my remaining time. From being personally traumatised by being born gay in a more hostile era, 74 years ago, and having managed Amnesty International Australia through the 1980s, while campaigning for community based mental health care in Blacktown, I became acutely aware of the need for a local refugee trauma treatment service. In 1988, I initiated the NSW Service for the Treatment and Rehabilitation for Torture and Trauma Survivors, or STARTTS, and I still chair the board. I tried changing the public mental health system from within, as Area Director of Mental Health for Western Sydney Area Health Service from 2005 to 2012, but discovered that was not possible due to vested interests. I was eventually driven out for too strongly defending the community mental health budget from diversion to physical health in the hospitals.

I went back to clinical work in my beloved Blacktown and then my current role came along in January 2015 and I discovered the developmental trauma walking through the doors of the headspace primary care sites. I was shocked at the severity of their symptoms and the fact that in spite of the best efforts of the minimal staff, there are insufficient means to care for them and few services wanting to take them on. Then I noticed that the young people registered in our headspace Early Psychosis were also highly traumatised.

However, a really great discovery was that headspace Early Psychosis provides the best possible platform to apply new trauma treatment, as an add on to a world best practice model, with adequate funding, and a recovery focus. Finally, there was fertile ground for action, as Parramatta Mission and Wentworth Health shared our vision and their values said go for it!

So I am unashamedly a campaigner and will not stop until we are effectively treating developmental trauma.

Thus this webinar is aimed at the interested public as well as clinicians, and I hope that you all get something out of it. For those who want more detail on aspects of our presentations, we will not only give you access to the recordings of today, but we will place additional reference materials on the website.

There has been a growing interest in the effects of trauma on mental wellbeing and the need for trauma informed care. What have not received the same attention are the effects of trauma on physical illness, as the brain controls everything. But most concerning of all, is

the lack of connection between the dysregulation of the brain by trauma and the severity of mental and physical health.

developmental trauma

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Developmental trauma, can be defined as all those harmful experiences from conception until the brain matures around age 25, plus traumatic memories passed on through generations via epigenetic memory processes. It has also been called childhood maltreatment or complex trauma, but I think, along with key researchers in the area, that developmental trauma is a much better diagnostic label

Despite the decade of the brain being the 1990s and the National Institute of Mental Health in the USA decision, to only fund research that connects to brain function, another 20 years have passed and psychiatry is still largely caught up in working with symptom clusters, with no clear connection to brain function.

a common factor in illness

The starting point is brain dysregulation from developmental trauma, that interacts with genes, leading to dysregulated biorhythms, hormonal and immune systems, with the resulting symptom cluster specific to that person.

That is why there is a dose related correlation between the severity of traumas and the severity of symptoms, whatever disorders appear, and the reduction of life span by up to 20 years.



Researchers are looking at correlations with schizophrenia, such as inflammation, while other research is showing correlations between trauma and inflammation. To me the research shows that the starting point is brain dysregulation from developmental trauma, that interacts with genes, leading to dysregulated biorhythms, hormonal and immune systems, with the resulting symptoms specific to that person. That is why there is a dose related correlation between the severity of traumas and the severity of symptoms, whatever disorders appear, and the reduction of life span by up to 20 years.



epigenetic risk

Children exposed to interpersonal victimisation often meet criteria for psychiatric disorders based on genetic predisposition.

The genetic risk for schizophrenia is 32% and epigenetic risk 68%.

headspace

The infographic features a green background with white text. In the top right corner, there is a circular logo composed of white dots arranged in concentric circles. In the bottom right corner, the 'headspace' logo is visible, consisting of a stylized icon of two people and the word 'headspace' in a sans-serif font.

Children exposed to interpersonal victimisation often meet criteria for psychiatric disorders based on genetic predisposition. For example, the genetic risk for schizophrenia is 32% and epigenetic risk 68%.

A lot of effort goes into biological research and treatments, such as medications, which do not cure the conditions. Now is the time to look at the major component – the 68% epigenetic risk.

Symptoms include affect and behaviour dysregulation, disturbances of consciousness and cognition, alterations in attribution and schema, and interpersonal impairment.

Currently multiple comorbid diagnoses, based on symptom clusters, are necessary, but not necessarily accurate, leading to both under-treatment and over-treatment, with a failure to actually treat the effects of developmental trauma.

Trauma informed care is great, but it does not actually treat the trauma, yet that is what needs to happen to cure the dysregulation of the brain.

failures to note and treat

When 29 specialist mental health services screened for PTSD in adults, no matter what main diagnosis was given, around 30% scored positively, only 2.3% had it mentioned in the case notes and no service actually treated the PTSD.

As PTSD is only a subset of responses to trauma, many more were missed and probably not treated for emotional abuse, attachment disorders and neglect

Zammit et al 2018

Presentation Title 6

Most psychiatric and psychological research has not assessed the levels of developmental trauma and taken it into account in their analysis or conclusions. So, when a review found 29 specialist mental health services that had screened for PTSD in adult patients, no matter what main diagnosis was given, around 30% scored positively, only 2.3% mentioned it in the case notes and no service actually treated the PTSD. As PTSD is only a subset of responses to trauma, many more were missed and probably not treated for emotional abuse, attachment disorders and neglect.

Why this is so, is a story for another day, but you will understand why I think most mental health research is highly confounded.

Developmental trauma is probably the most unified cause of disorder, but the one given the least attention and specific treatment. Efforts continue to try to bundle symptoms with labels like PTSD, complex trauma, complex PTSD, but the psychiatric presentations connected to trauma cover the whole spectrum of disorders and many physical health disorders.

Thank goodness technology has now provided the means to assess brain function and re-regulate brain activity, and effectively treat the effects of developmental trauma.

In this webinar, we will provide you with a summary of the evidence base for this conclusion.

STARTTS annually treats around 7,500 refugees of all ages and with every type of trauma – Sejla Murdoch will take you through their learnings.

After a short comfort break, Mirjana Askovic and Vivek Sharma will summarise evidence around EEG analysis and EEG neurofeedback, especially as it relates to our young people in headspace Early Psychosis at Penrith.

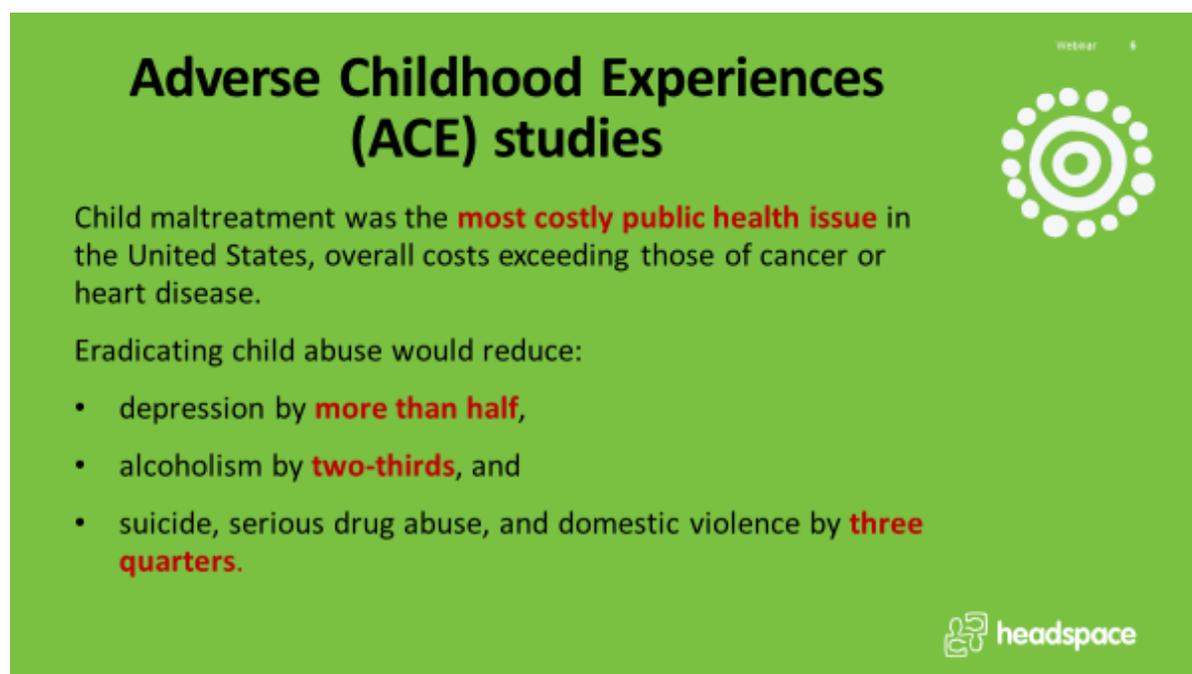
To better understand our research project design, Aydin Anic, will give a brief description of the protocol.

Then I will be back again to wrap up the webinar. Don't forget that these presentations will be recorded and available to you later, so no worries if you need to drop out at some point.

But before we get into the brain science, I need to discuss the dismal science of economics!

It has been said that if we can effectively treat developmental trauma, it will be the greatest public health achievement of all time. While sanitation might beat it, there are good reasons for this opinion.

Economic Imperative



The slide is green with white text. At the top right, it says 'Webinar 6'. The title 'Adverse Childhood Experiences (ACE) studies' is in large, bold, black font. Below the title, it says 'Child maltreatment was the **most costly public health issue** in the United States, overall costs exceeding those of cancer or heart disease.' To the right of this text is a white circular logo with a target-like pattern of dots. Below that, it says 'Eradicating child abuse would reduce:' followed by a bulleted list: '• depression by **more than half**,', '• alcoholism by **two-thirds**, and', '• suicide, serious drug abuse, and domestic violence by **three quarters**.' At the bottom right is the 'headspace' logo.

The Adverse Childhood Experiences (ACE) studies (Centers for Disease Control & Prevention, USA) concluded that child maltreatment was the most costly public health issue in the United States, calculating that the overall costs exceeded those of cancer or heart disease, and that eradicating child abuse in America would reduce the overall rate of depression by more than half, alcoholism by two-thirds, and suicide, serious drug abuse, and domestic violence by three quarters.

It is such an important issue because of the high levels of prevalence in our communities.

Emotional abuse, failed attachment, and the effects of poverty, are probably under-reported in retrospective questionnaires.

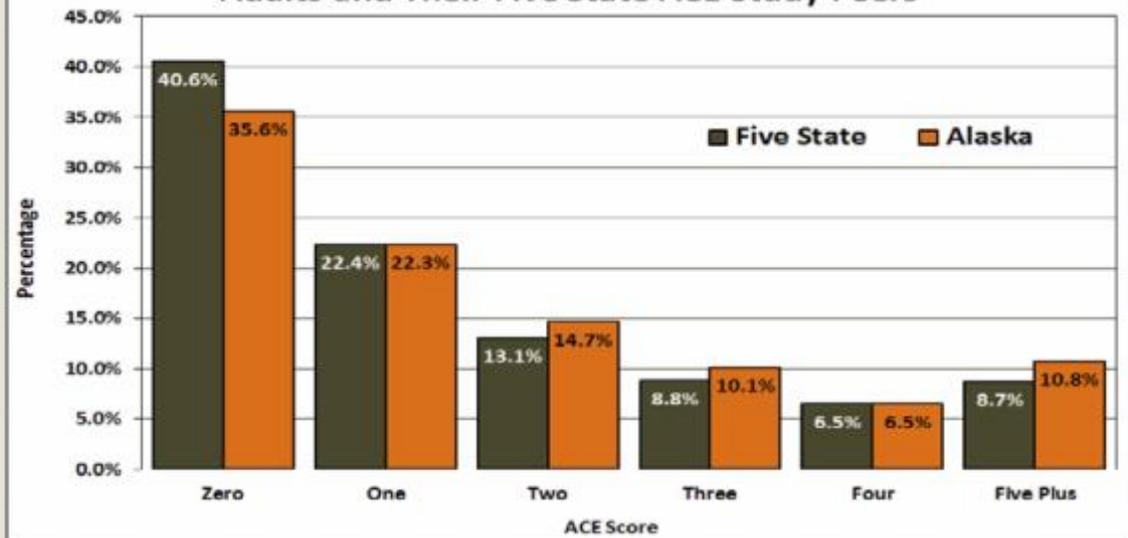
The following two slides are from the original Adverse Childhood Experiences study using the Kaiser Permanente health maintenance organisation clients in California, and the use of the same questionnaire in other states.

Prevalence of Adverse Childhood Experiences

ACE Category	Women	Men	Total
	Percent (N = 9,367)	Percent (N = 7,970)	Percent (N = 17,337)
ABUSE			
Emotional Abuse	13.1%	7.6%	10.6%
Physical Abuse	27%	29.9%	28.3%
Sexual Abuse	24.7%	16%	20.7%
HOUSEHOLD CHALLENGES			
Mother Treated Violently	13.7%	11.5%	12.7%
Household Substance Abuse	29.5%	23.8%	26.9%
Household Mental Illness	23.3%	14.8%	19.4%
Parental Separation or Divorce	24.5%	21.8%	23.3%
Incarcerated Household Member	5.2%	4.1%	4.7%
NEGLECT			
Emotional Neglect	16.7%	12.4%	14.8%
Physical Neglect	9.2%	10.7%	9.9%

Centers for Disease Control and Kaiser
Permanente Study of 17,000

Adverse Childhood Experiences Scores for Alaskan Adults and Their Five State ACE Study Peers



If you sum the 3 types of adverse experiences or more, considered significant levels of trauma, it totals 24%

Around 17% have 4 or more types of trauma with very significant effects on mental and physical health, and if 6 or more, life expectancy is reduced by 20 years, as noted in our indigenous community.

Presentation Title 11



Forecasting Future Outcomes < 25

Total estimated future cost for 3.1M = \$428B
Average estimated future cost NSW born= 143K
Young mothers & children = \$907K
Vulnerable young transitioning to adult = \$ 382K
Vulnerable young adolescents = \$344K
Children & YP affected by mental illness = 300K



The NSW government commissioned a fascinating actuarial study, producing the Forecasting Future Outcomes report in 2018.

Analysis of 8 million data items in the government databases, for all children and young people age under 25, showed that 7% of the population was forecasted to use 50% of the state resources, or \$428 billion by the age of 40. Looking at the relevant groups, to me they have all suffered significant developmental traumas.

There are also 1,000 individuals who cost \$2.3 million each – it would be great to be given the challenge to analyse and treat those dysregulated brains!

Dunedin Longitudinal Study

A segment with Low SES, Child Maltreatment, Low IQ or Childhood Low Self Control, comprising 22% of the cohort accounted for:

36% of the cohort's injury insurance claims;

40% of excess obese kilograms;

54% of cigarettes smoked;

57% of hospital nights;

66% of welfare benefits;

77% of fatherless child-rearing;

78% of prescription fills; and

81% of criminal convictions.

Presentation Title 12

The New Zealand Dunedin prospective study, commencing with 1,037 consecutive births in Dunedin 47 years ago, with assiduous follow up every few years and still achieving around 95%, has produced some similar results. A study with data up to the age of 38 showed that, assessed at the age of 3, a segment with Low Socio-Economic Status, Child Maltreatment, Low IQ or Childhood Low Self Control, comprising 22% of the whole cohort, accounted for about 80% of social and economic costs by the age of 38. 12.7% had received a diagnosis of PTSD, and that would not include the other types of trauma responses.

There have been many Australian studies. costing different aspects of the effects of developmental trauma, that entirely support the thorough NSW report, which only covers state government costs. There are additional economic benefits of effective treatment of developmental trauma through reduced workers compensation and accident claims, private health costs and insurance.

If we could only save 1% of those state costs, it would save the taxpayers of NSW around \$535 per resident. We will present to you evidence from studies that I think would lead to massive savings and make the investment of \$1 per resident per year for a pilot developmental trauma treatment service a no brainer.

RESEARCH ISSUES

Despite the long history of research you will soon hear about, there is a real need for more targeted research.

Because we work in a program that gives an excellent base of international best practice, in treating first episode psychosis, to assess and specifically treat developmental trauma in our young people, means that it is a clear add on, not confounded by poor service delivery or underfunded like the state mental health system.

But to rush to a highly specific controlled study is premature for two reasons.

1. When we look at our young people, their presentations are highly diverse, with many co-morbidities, so we need to get a better understanding of relevant factors, to drive the next stage of research design.
2. To apply EEG recording, analysis and EEG neurofeedback, we needed funding for additional clinicians with the appropriate skills, and they are very hard to find to work with young people and trauma.

Thank goodness Wentworth Healthcare, the provider of the Nepean & Blue Mountains Primary Health Network, had the vision to back us with our 30 person case series. Thank goodness STARTTS recently set up the Australian NeuroFeedback Institute, to train clinicians with a connection to treating trauma, and to provide mentoring for our project. And thank goodness two excellent doctors, who had got themselves trained in EEG analysis and neurofeedback, set up a practice in Blacktown, so we could grab one of them, Dr Vivek Sharma.

That is enough from me now until I add some additional points at the end of the webinar.