Institution: University of Oxford

Unit of Assessment: 4 - Psychology, Psychiatry and Neuroscience

Title of case study: Effective psychological therapy and prevention programmes for post-traumatic stress disorder (PTSD)

Period when the underpinning research was undertaken: 2000 - 2020

Details of staff conducting the underpinning research from the submitting unit:

Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Anke Ehlers	Wellcome Principal Research Fellow and Professor of Experimental Psychopathology	1993 – 2001, 2012 – present
Jennifer Wild	Associate Professor	2012 – present
David M. Clark	Chair of Experimental Psychology	1983 – 2001, 2011 – present
Ann Hackmann	Research Clinical Psychologist	1986 – 2011
Melanie Fennell	Research Clinical Psychologist	1981 – 2014
Esther Beierl	Postdoctoral Fellow	2017 – present

Period when the claimed impact occurred: August 2013 to December 2020

Is this case study continued from a case study submitted in 2014? N

1. Summary of the impact

Research at the University of Oxford has changed the treatment and prevention of post-traumatic stress disorder (PTSD). The researchers developed and validated a psychological model of the key factors that lead to PTSD. A novel form of cognitive therapy (CT-PTSD) that specifically targets these psychological processes was then developed and shown to be highly acceptable and highly effective. CT-PTSD received the highest recommendation as a first-line intervention in the revised *NICE PTSD guidelines* (2018), and the clinical guidelines of the *American Psychological Association* (2016) and *International Society for Traumatic Stress Disorders* (2019). CT-PTSD has been made widely available in the NHS through *Improving Access to Psychological Therapies* (4,800 therapists trained and over 74,000 patients treated between 2013 and 2020), in secondary and tertiary care services and by being disseminated in 143 other countries. The researchers have also developed an effective prevention programme designed to reduce the risk of PTSD in emergency workers and other people exposed to high levels of stress that is being widely rolled out in the UK in collaboration with the charity MIND.

2. Underpinning research

PTSD is a disabling condition that may develop after traumatic events such as disaster, interpersonal violence, severe accidents or war zone experiences. Epidemiological studies and the 2007 Adult Psychiatric Morbidity Survey suggest that 2-3% of adults in the UK suffer from PTSD (1-1.5 million). PTSD interferes severely with the individual's relationships with others and ability to work. If untreated, it can lead to secondary mental health problems, substance misuse, and an increased risk of cardiovascular illness or suicide.

A cognitive model of PTSD and evidence

Ehlers and Clark's group at Oxford developed a psychological model [1] that accounts for the development and persistence of PTSD in individuals who have experienced traumatic events by a combination of three factors: 1) excessively negative appraisals, i.e. interpretations that the trauma and/or its consequences indicate a current threat, 2) characteristics of trauma memories and their triggers leading to unwanted re-experiencing of distressing moments of the trauma, and 3) problematic behaviours and cognitive strategies that prevent the appraisals

and memories from changing, such as excessive precautions and rumination about the trauma.

Experiments and prospective prediction studies conducted by Ehlers and Clark's team at Oxford provided strong support for Ehlers and Clark's model [**1**], for example in the prediction of PTSD in traumatized individuals [**2, 3, 4**]. A prospective study of PTSD following assault, conducted by the Oxford team, supported key hypotheses drawn from the model by suggesting that peritraumatic cognitive processing and disorganized memories are related to the development of PTSD [**2**]. A path analysis of a large longitudinal study of trauma survivors comprehensively tested the maintaining factors of the model and showed that the causal relationships proposed in the model are consistent with the data [**3**]. The University of Oxford team also showed that the factors specified in the model [**1**] predict the risk of developing PTSD after subsequent trauma exposure in emergency workers through a prospective study of pre-trauma predictors [**4**]. These studies provided important evidence for the underlying model and have implications for the treatment and prevention of PTSD.

Development of an effective cognitive therapy for PTSD

Ehlers and Clark's model was used by the University of Oxford team to generate a specific cognitive therapy for PTSD (CT-PTSD) which aims to correct the three central psychological factors identified in the model (described in [**1**]). The first randomised controlled trials (RCTs) of cognitive therapy for PTSD, which were run with patients in Oxford and Northampton between February 1998 and January 2001 [**5**], showed that CT-PTSD is effective in treating chronic PTSD and as an early intervention to prevent the development of chronic PTSD. The treatment has been shown to be effective in adults and children, leading to recovery from PTSD in over 70% of the cases, very large reductions of PTSD symptom severity and improvements in social life and ability to work, and in quality of life (pre-post intent-to-treat treatment effect sizes 2.5, 1.6, and 1.1, respectively). This is an advance over earlier forms of cognitive behaviour therapy, which achieved completer effect sizes for PTSD symptom severity of around 1.5 (meta-analysis by Van Etten & Taylor, 1998). Another advantage is that the treatment is highly acceptable to patients, with lower dropout rates (6% on average in RCTs) than have been reported for other psychological trauma-focused treatments (23% on average according to meta-analyses). Thus, more people are able to complete the treatment and recover.

More recently, Ehlers' group developed modifications in the delivery format of CT-PTSD that increase patient choice and the efficiency of the treatment. Their RCTs showed in 2014 that the treatment was as effective in the form of an intensive intervention delivered over just 7 days as it was in a weekly format, and both are superior to supportive therapy [**6**].

Development of an effective PTSD prevention programme for emergency workers

Drawing on the results of references [**3**] and [**4**] and therapeutic procedures from CT-PTSD [**1, 5, 6**], Wild developed a digitally delivered prevention programme that modifies relevant cognitive predictors of PTSD and depression in emergency workers. An RCT showed it was effective in increasing well-being and reducing the risk of PTSD and Depression symptoms following subsequent trauma exposure [D(ii)]. This represents an advance over previous resilience training programmes, which were shown to be ineffective [D(iii)].

3. References to the research (bold for researchers who were employed at the University of Oxford at the time of the research; italics for University of Oxford students)

1. **Ehlers A** & **Clark DM** (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy, 38,* 319-345. DOI: 10.1016/s0005-7967(99)00123-0 Citations: Google Scholar 6210 (31/12/2020)

2. *Halligan SL, Michael T*, **Clark DM**, & **Ehlers A** (2003). Posttraumatic stress disorder following assault: the role of cognitive processing, trauma memory, and appraisals. *Journal of Consulting and Clinical Psychology, 71*, 419-431. DOI: 10.1037/0022-006x.71.3.419

[Study designed by Ehlers and Clark at Oxford, and carried out and analysed by Ehlers, at Oxford. Submitted for publication November 2001.]

3. **Beierl ET**, Böllinghaus I, **Clark DM**, Glucksman E, & **Ehlers A** (2019). Cognitive paths from trauma to posttraumatic stress disorder: A prospective study of Ehlers and Clark's model in survivors of assaults or road traffic collisions. *Psychological Medicine, 50*, 2172-2181. DOI: 10.1017/S0033291719002253.

4. **Wild J**, **Smith KV**, Thompson E, Béar F, **Lommen MJJ,** & **Ehlers, A.** (2016). A prospective study of pre-trauma risk factors for post-traumatic stress disorder and depression. P*sychological Medicine, 46(*12), 2571-2582. DOI: 10.1017/S0033291716000532.

5. **Ehlers A**, **Clark DM**, **Hackmann A**, **McManus F**, **Fennell MJ**, Herbert C, **Mayou RA** (2003). A randomized controlled trial of cognitive therapy, a self-help booklet, and repeated assessment as early interventions for PTSD. *Archives of General Psychiatry, 60,* 1024-1032. DOI: 10.1001/archpsyc.60.10.1024.

6. **Ehlers A**, **Hackmann A**, Grey N, **Wild J**, Liness S, Albert I, Deale A, Stott R, & **Clark DM** (2014). A randomized controlled trial of 7-day intensive and standard weekly cognitive therapy for PTSD and emotion-focused supportive therapy. *American Journal of Psychiatry, 171,* 294-304. DOI: 10.1176/appi.ajp.2013.13040552.

Amongst other awards, Ehlers has received the 2013 Oswald-Külpe-Prize for the experimental study of higher mental processes, for achievements in the field of PTSD research; and the 2015 Wilhelm Wundt- William James Award, awarded jointly by the European Federation of Psychology Associations and the American Psychological Foundation, which cited that "With her fundamental research, she was able to show which factors are decisive for whether a person suffers from post-traumatic stress disorder".

Funding for this work at the University of Oxford includes renewals of a Wellcome Trust Principal Research Fellowship to D Clark (PI) and A Ehlers (Co-I), 'Cognitive Processes in the maintenance and treatment of social phobia and post-traumatic stress disorder', GBP994,135 (reference 037158/Z/96/C, 1998-2003); and to A Ehlers (PI) and D Clark (Co-I), 'Cognitive therapy and processes in posttraumatic stress disorder and social anxiety disorder;' GBP1,453,159 (069777/B/02/A, 2014-2016) and 'Advancing cognitive therapy for anxiety disorders and PTSD', GBP3,266,571 (200796/Z/16/Z, 2017-2022).

4. Details of the impact

The research described above has had a major impact on the diagnosis and treatment outcomes of PTSD in the NHS and overseas, and on the delivery of more effective resilience training to emergency workers and other people exposed to high levels of stress.

UK and international clinical practice guidelines on the treatment of PTSD

The National Institute for Health and Care Excellence (NICE) has issued revised guidelines on the optimal treatment of PTSD (NG116, 2018) on the basis of a meta-analysis of RCTs. Based on the RCTs conducted at Oxford (e.g. [**5, 6**]), CT-PTSD received the highest level of endorsement as a first-choice treatment for acute and chronic PTSD. The guidelines state that cognitive therapy for PTSD should be used as a psychological intervention for the prevention of PTSD in adults (1.6.15) and as a treatment for adults with a diagnosis of PTSD or clinically important symptoms of PTSD (1.6.16) [A(i)]. Similarly, the clinical guidelines of the American Psychological Association (2017) state *"For adult patients with PTSD, the panel strongly recommends that clinicians offer … cognitive therapy (CT) ..."* [A(ii), Table 1]. The International Society for Traumatic Stress Studies (2019) also give a 'Strong Recommendation' to CT-PTSD as a first-line intervention on the basis of their meta-analysis [A(iii)].

CT for PTSD disseminated within the English NHS and Northern Ireland

CT- PTSD [**1, 5, 6**] is now widely taught in the UK and is included in the national training curriculum for *Improving Access to Psychological Therapies (IAPT)* high intensity therapists [B] and is taught on the majority of IAPT high intensity therapy courses. Since August 2013,

around 4,800 IAPT therapists have learned the treatment approach and are delivering it in over 180 local services (over 74,000 patients treated since 2013, currently over 10,000 per year) [C], in addition to patients treated in secondary and tertiary care. The treatment is taught on other post-graduate diploma courses in psychological therapies and in specialist CBT diploma/ MSc course at Queens University, Belfast (180 therapists trained in the treatment approach on these courses since August 2013) and clinical psychology courses. In the early stages of the COVID pandemic, the Oxford team were asked to give webinars for NHS England on how to remotely deliver CT for PTSD (viewed by 3,270 clinicians until 31/07/20) and traumatic bereavement (2,779 clinicians). The Oxford team was also commissioned by Health Education England to offer a national top-up training for high intensity IAPT therapists delivering CT-PTSD, starting in November 2020.

PTSD prevention and stress resilience training

The PTSD prevention programme developed by the Oxford group on the basis of the prospective studies [**3**, **4**] is a recommended intervention for emergency workers and is being disseminated across England and Wales through the Blue Light Programme [D(i)]. By December 2020, 32 emergency services across England and Wales have benefited to date with an additional 10 services currently undergoing training. The benefits have been twofold: access to evidence-based training, and significant improvements in wellbeing as measured by the Warwick Edinburgh Mental Wellbeing Scale [D(i)]. Newly recruited emergency workers (223 to Dec 2020) have benefited from the programme with significant improvements in confidence managing their mental health once they start full-time work, and another 570 student paramedics at 15 universities across England have completed the programme [E(i)]. During 2020 the programme was also being delivered to paramedics in Singapore during the COVID pandemic.

The prevention programme also forms the basis of current resilience and wellbeing interventions, training and outreach programmes that the mental health charity, Mind, is delivering across England and Wales [E]. For example, the intervention is now being routinely offered across 16 Local Minds in Wales (80% of the Local Minds available in Wales) to support a range of people exposed to stress, including 350 older adults, 1,600 university students and families of military veterans (120 people) by December 2020. These recipients have benefited with significant improvements in wellbeing as measured by the short Warwick Edinburgh Mental Wellbeing Scale [D(ii)].

Impact on international diagnostic criteria for PTSD

The Oxford group's research provided evidence for changes in diagnostic criteria for PTSD in the DSM-5 (American Psychiatric Association, 2013) and ICD-11 (World Health Organization, 2018) [F]. Ehlers' research showing that ruminative thoughts about trauma are functionally different from intrusive memories (as developed in [**1**] and [**3**]) led to a revision of DSM criterion B1 to "*restrict this criterion to involuntary and intrusive distressing memories*" [F(i). Similarly the findings on appraisals in Ehlers' research led to new symptoms in cluster D ("*Negative alterations in cognitions and mood that are associated with the traumatic event(s)*") [F(i)]. Ehlers' research on the perceived 'nowness' of trauma memories and the model's emphasis of a sense of current threat [**1**, **2**] was included to define the ICD-11 (2019) symptom clusters "*re-experiencing in the present*" and "*persistent perceptions of heightened current threat*" [F(ii), citing [1]; and F(iii), disorder 6B40].

International recognition and dissemination of CT for PTSD

The outstanding results obtained with CT-PTSD have led clinicians and health service commissioners from many countries to request training. Since August 2013, Ehlers and her team have provided 112 workshops on the treatment in England, Scotland, Wales, Northern Ireland, The Netherlands, Germany, Norway, Sweden, Finland, Iceland, Switzerland, Italy, Slovenia, Ukraine, Greece, Poland, Hungary, Israel, Sudan, China, Australia and the USA, reaching a combined total of 6,756 attendees, the majority of whom were clinical psychologists, CBT practitioners, psychiatrists and nurse practitioners. A treatment manual and therapist training videos are available free of charge at the Oxford Centre for Anxiety Disorders and Trauma website [G]. Between 1st January 2019 and 28th October 2020, 15,340

therapists from 143 countries registered for this training website. A German therapist manual has also been published (Hogrefe, over 5,000 sales since August 2013). A Japanese manual is also available. The treatment was successfully implemented in several Scandinavian countries. It was delivered in a primary care intervention study in Stockholm, with similar effect sizes to the ones in Ehlers et al.'s randomised controlled trials [H]. It is now being rolled out into secondary care services in Norway, in a large government funded project [H]. The success of intensive, 7 day version of CT-PTSD has stimulated the implementation of intensive treatment programmes in several countries including the Netherlands (e.g. [I]) and the USA.

5. Sources to corroborate the impact

A: Highest-level recommendations of CT-PTSD in UK and international treatment guidelines:
(i) NICE PTSD Guidelines (2018) - https://www.nice.org.uk/guidance/ng116, recommendations 1.6.15 and 1.6.16;
(ii) American Psychological Association Clinical Practice Guideline for the Treatment of PTSD (2017) - https://www.apa.org/ptsd-guideline/ (Table 1, page 4);
(iii) International Society for Traumatic Stress, Posttraumatic Stress Disorder Prevention and Treatment Guidelines: Methodology and Recommendations (2019), p16-17. https://istss.org/clinical-resources/treating-trauma/new-istss-prevention-and-treatment-guidelines#documents

B: (i) Curriculum for IAPT High Intensity Courses, available at NHS England IAPT Website, https://www.england.nhs.uk/mental-health/adults/iapt/ and (ii) the official competency framework that underpins the IAPT curriculum (specifying Ehlers & Clark's CT-PTSD) https://www.ucl.ac.uk/pals/sites/pals/files/all_problem-specific_competences.pdf (p51-56)

C: NHS Digital Annual Reports on the performance of IAPT services. https://digital.nhs.uk/data-and-information/publications/statistical/psychological-therapies-annual-reports-on-the-use-of-iapt-services

D: (i) Dissemination of prevention programme to emergency workers: https://www.mind.org.uk/media/24739346/blue-light-programme-research-summary_2016-to-18_online.pdf [improvements in resilience and wellbeing, p. 14-19];
(ii) Summary of unpublished results of one year follow-up data, PREVENT-PTSD trial.
(iii) Journal article: Wild, J. et al (2020), 'Evaluating the effectiveness of a group-based resilience intervention versus psychoeducation for emergency responders in England: A randomised controlled trial', *PLoS ONE 15(11):* e0241704
DOI: 10.1371/journal.pone.0241704

E: (i) Letter from Head of Research and Evaluation, MIND, confirming roll-out and numbers of the prevention programme. (ii) MIND, 'Our work in Wales: My Generation', https://www.mind.org.uk/media-a/4355/my-generation-report_-english.pdf

F: (i) **DSM-5**: Friedman, M.J., Resick, P.A., Bryant, R.A., & Brewin, C.R. (2010). Considering PTSD for DSM-5. *Depression and Anxiety*. DOI :10.1002/da.20767.
(ii) Brewin, C.R et al (2017). A review of current evidence regarding the ICD-11 proposals for diagnosing PTSD and complex PTSD. *Clinical Psychology Review* 58:1-15. DOI: 10.1016/j.cpr.2017.09.001; (iii) **ICD-11** Disorder 6B40, 'Post traumatic stress disorder' set out at https://icd.who.int/browse11/l-m/en#/http://id.who.int/icd/entity/2070699808

G: Oxford Centre for Anxiety Disorders Training Website for Therapists listing materials available https://oxcadatresources.com (archived copy 4 August 2020).

H: (i) Letter from Director and Project Leader, Norwegian Centre for Violence and Traumatic Stress studies, confirming roll-out to Norwegian trauma services funded by Norwegian government; (ii) data from proof-of-principle dissemination study at Gustavsberg primary care clinic, Sweden, 2015-2018.

I: Journal article: Van Woudenberg C et al. (2018). Effectiveness of an intensive treatment programme combining prolonged exposure and eye movement desensitization and reprocessing for severe post-traumatic stress disorder. *European Journal of Psychotraumatology*, 9(1):1487225 DOI: 10.1080/20008198.2018.1487225