

Dr Elena Makovac

BSc., PhD

**Clinical Psychologist in
Neuropsychology and Neurorehabilitation**



Health Professions Council Registration: **PYL38510**
British Psychological Society Membership: **365643**

Dr. Elena Makovac is a Senior Lecturer in Clinical Psychology and an HCPC registered Clinical Psychologist specializing in neuropsychological assessments and rehabilitation. With a focus on neurological conditions such as Parkinson's Disease, stroke, brain tumour, multiple sclerosis, dementia, epilepsy and brain injuries, she offers specialized diagnostic assessments of cognitive functions, emotional wellbeing and chronic pain. In her clinical work, she mainly adopts a Cognitive-Behavioural approach, with specific focus on Mindfulness based Cognitive Behavioural Therapy, Acceptance and Commitment techniques and Deep Breathing Relaxation exercises. She also specialises in Chronic pain assessment and pre-surgery assessment for Deep Brain Stimulation. With her scientific work, she investigates the relationship between the mind and body in affective disorders, chronic pain, and neuropsychological conditions. Her focus is on understanding the interplay between emotions, pain, and cognition in these overlapping conditions, and her unique background equips her to treat patients in a comprehensive and holistic manner.

AREAS OF SPECIALISM

- Clinical psychology
- Adults
- Chronic pain
- Neuropsychology
- Memory problems
- Stroke
- Brain injury

ACADEMIC QUALIFICATIONS

- 2021 – Present** Qualification in Clinical Neuropsychology
- 2012** Doctorate in Psychology and Neuroscience, University of Edinburgh
- 2008** Clinical Psychology training – University of Trieste
- 1993** BSc Psychology (First Class)

PROFESSIONAL QUALIFICATIONS & MEMBERSHIPS

- Member of the Division of Clinical Psychology, British Psychological Society
- HCPC registered Clinical Psychologist. Registration number: PYL 38510
- Chartered member (CPsychol) of the British Psychological Society. Membership number: 365643
- Best Interest Assessor for the Deprivation of Liberty Safeguards

ADDITIONAL RELEVANT TRAINING

- Bond-Solon Excellence in Report Writing course.

- Acceptance and Commitment training
- CBT training Oxford Cognitive Therapy Centre
- Bond Solon Best Interest Assessor training, The Tavistock and Portman,

EXPERT WITNESS EXPERIENCE

- I conduct comprehensive psychological assessments and evaluations for individuals who have suffered from personal injuries or have been involved in clinical negligence cases.
- I provide objective and impartial assessments to aid legal proceedings and insurance claims.
- I assess the psychological impact of the incident on the individuals' mental health and well-being.

CLINICAL EXPERIENCE

- **Neuropsychological assessment for Adults with Acquired Brain Injuries or Neurological Conditions:** During my clinical practice, I have specialized in providing comprehensive psychological assessments and evidence-based therapy to adults who have experienced acquired brain injuries or neurological conditions. These assessments aim to understand the cognitive, emotional, and behavioural consequences of brain injuries, guiding treatment planning and intervention strategies tailored to each individual's unique needs.
- **Therapeutic Interventions.** I am proficient in delivering various therapeutic interventions to address the psychological challenges faced by individuals with brain injuries or neurological conditions. Among the therapeutic modalities, I have expertise in Cognitive-Behavioural Therapy (CBT), a structured approach aimed at modifying dysfunctional thoughts and behaviours. Additionally, I have experience in implementing Acceptance and Commitment Therapy (ACT), which helps clients cultivate psychological flexibility and develop values-based behaviours to enhance overall well-being.
- **Training and Consultation for Professionals:** I have contributed to the professional development of colleagues and healthcare professionals. I have conducted training sessions and workshops to enhance their understanding of brain injuries, neurological conditions, and their psychological impact. I collaborate with interdisciplinary teams to optimize patient care, fostering a more comprehensive approach to rehabilitation and support.
- **Service Development Projects:** I have engaged in service development projects to improve the quality and accessibility of psychological services for individuals with neurological conditions. By identifying gaps I have contributed to the design and implementation of innovative programs and initiatives aimed at meeting the unique needs of this population.
- **Supervision of Research Projects:** I have provided supervision and mentorship to research projects related to brain injuries and neurological conditions.

EMPLOYMENT HISTORY

2022 – Present Senior Lecturer in Clinical Psychology. Brunel University London

2021 – Present Clinical Psychologist in Neuropsychology, Neuroscience Department, King's College Hospital.

2020 – Present Clinical Psychologist in private practice. Pre Deep Brain Stimulation neuropsychological assessments.

2020 – Present Honorary Lecturer in Neuroscience at St George's University of London.

2021 – Present Module author for the university modules 'Clinical Psychology' and 'Trends in Cognitive Neuroscience', The Open University of London.

2017 – Present Research Fellow in Pain research, Institute of Psychology, Psychiatry and Neuroscience, King's College London.

RESEARCH GRANTS

European Federation for Pain, Grunenthal 2018 grant, 40.000 €. Title of the project: 'What is the role of baroreceptors in chronic pain'? Role: Principal investigator

AWARDS

- **Young Investigator Colloquium**, American Psychosomatic Society, Vancouver 04-09 of March 2019
- **Independent Researcher Award**, King's College London, April 2018
- **XV National Award for medicine and psychology** from the foundation "Santi Medici Cosma e Damiano" on the topic "Neurodegenerative diseases: clinical and psychological aspects", awarded on the 23rd of October 2015, Bitonto, Italy
- **Perusini award**, VIII Congresso Sindem 2013 (VIII Congress of the Italian Society for Dementia), Perugia 13 -15 March, 2013.

PUBLICATIONS AND PRESENTATIONS

1. Medina, S., Bakar, N. A., O'Daly, O., Miller, S., **Makovac, E.**, Renton, T., ... & Howard, M. A. (2021). Regional cerebral blood flow as predictor of response to occipital nerve block in cluster headache. *The Journal of Headache and Pain*, 22(1), 1-14.
2. **Makovac, E.**, Carnevali, L., Medina, S., Sgoifo, A., Petrocchi, N., & Ottaviani, C. (2021). Safe in my heart: resting heart rate variability longitudinally predicts emotion regulation, worry, and sense of safeness during COVID19 lockdown. *Stress*, 1-5.
3. Damestani, N. L., O'Daly, O., Solana, A. B., Wiesinger, F., Lythgoe, D. J., Hill, S., de Lara Rubio, A, **Makovac, E** ... & Zelaya, F. (2021). Revealing the mechanisms behind novel auditory stimuli discrimination: An evaluation of silent functional MRI using looping star. *Human Brain Mapping*, 42(9), 2833-2850.
4. Bas-Hoogendam JM, Groenewold NA, Aghajani M, Freitag GF, Harrewijn A, Hilbert K, Jahanshad N, Thomopoulos SI, Thompson PM, Veltman DJ, Winkler AM, Lueken U, Pine DS, van der Wee NJA, Stein DJ; **ENIGMA-Anxiety Working Group*** (2020). ENIGMA-anxiety working group: Rationale for and organization of large-scale neuroimaging studies of anxiety disorders. *Human Brain Mapping*, 43(1), 83-112.
5. **Makovac E**, Calcagnini G, Venezia A, Hohenschurz-Schmidt D, Jackson JB, Medina S, O'Daly O, Williams SCR, McMahon SB, Howard MA (2021). The association between pain-induced autonomic reactivity and top-down pain modulation is mediated by the periaqueductal grey. *The Journal of Physiology*, 599(23), 5243-5260.
6. Koenig, Julian, et al. (2021) Cortical thickness and resting-state cardiac function across the lifespan: A cross-sectional pooled mega-analysis. *Psychophysiology*, 58.7, e13688.
7. Jackson JB, Daly O, **Makovac E**, Medina S, Barker G, Renton T, Marquand A, O'Muircheartaigh J, McMahon SB, Steve CR Williams, Howard MA (2020). Test–retest reliability of evoked cold and pressure stimulation with BOLD fMRI. *Neuroimage*, 221, 117178.
8. Zugman A, Harrewijn A, Cardinale EM, Zwiebel H, Freitag GF, Werwath KE, ... & Winkler AM. (2022). Megaanalysis methods in ENIGMA: The experience of the generalized anxiety disorder working group. *Human Brain Mapping*, 43(1), 255-277.
9. **Makovac, Elena**, Porciello G, Palomba D, Basile B, & Ottaviani C. (2020). Blood pressure-related hypoalgesia: A systematic review and meta-analysis. *Journal of Hypertension*, 38 (8), 1420-1435.

10. Hohenschurz-Schmidt D, Calcagnini G, Dipasquale O, Jackson JB, Medina S, O'Daly O, O'Muircheartaigh J, de Lara Rubio A, Williams SCR, McMahon SB, **Makovac E** * and Howard MA (2020). Linking pain sensation to the autonomic nervous system: the role of the anterior cingulate and periaqueductal grey resting-state networks. *Frontier in Autonomic Neuroscience*, 147.
11. **Makovac E**, Dipasquale O, Jackson JB, Medina S, O'Daly O, O'Muircheartaigh J, de Lara Rubio A, Williams SCR, McMahon SB, Howard MA (2019). Sustained perturbation in functional connectivity induced by cold pain. *European Journal of Pain*, 24(9), 1850-1861.
12. **Makovac E**, Fagioli S, Rae CL, Critchley H, Ottaviani C (2019). Can't get it off my brain: Meta-analysis of neuroimaging studies on perseverative cognition. *Psychiatry Research: Neuroimaging*, 295, 111020.
13. Carnevali L, Mancini M, Koenig J, **Makovac E**, Watson DR, Meeten F, Critchley HD, Ottaviani C (2019). Cortical morphometric predictors of autonomic dysfunction in generalized anxiety disorder. *Autonomic Neuroscience: Basic and Clinical*, 217:41-48.
14. **Makovac E**, Fagioli S, Watson DR, Meeten F, Smallwood J, Critchley HD, Ottaviani C (2019). Response time as a proxy of the ongoing mental state: A combined fMRI and pupillometry study in Generalized Anxiety Disorder. *Neuroimage*, 191:380-391.
15. **Makovac E**, Mancini M, Fagioli S, Watson DR, Meeten F, Rae CL, Critchley HD, Ottaviani C (2018). Network abnormalities in generalized anxiety pervade beyond the amygdala-pre-frontal cortex circuit: Insights from graph theory. *Psychiatry Res Neuroimaging*, 27,281:107-116.
16. **Makovac E**, Smallwood J, Watson DR, Meeten F, Critchley HD, Ottaviani C (2017). The verbal nature of worry in Generalized Anxiety: Insights from the brain. *Neuroimage: Clinical*, 14;17:882-892.
17. **Makovac E**, Serra L, Di Domenico C, Marra C, Caltagirone C, Cercignani M, Bozzali M (2018). Quantitative magnetization transfer characteristics of white matter tracts correlates with DTI indices in predicting the conversion from mild cognitive impairment to Alzheimer's disease. *Journal of Alzheimer's Disease*, 63, 561–575.
18. **Makovac E**, Garfinkel NS, Bassi A, Basile B, Macaluso E, Cercignani M, Calcagnini G, Mattei E, Agalliu D, Cortelli P, Caltagirone C, Critchley H, Bozzali M (2017). Fear processing is differentially affected by lateralized stimulation of carotid baroreceptors. *Cortex*, 99, 200-212.
19. **Makovac E**, Thayer, JF, Ottaviani, C (2016). A meta-analysis of non-invasive brain stimulation and autonomic functioning: Implications for brain-heart pathways to cardiovascular disease. *Neuroscience & Biobehavioral Reviews* 74(Pt B):330-341.
20. Meeten F, Davey GCL, **Makovac E**, Watson DR, Garfinkel SN, Critchley HD, Ottaviani C (2016). Goal directed worry rules are associated with distinct patterns of amygdala functional connectivity and vagal modulation during perseverative cognition. *Frontiers in Human Neuroscience*, 10:533.
21. **Makovac E**, Cercignani M, Serra L, Torso M, Spanò B, Petrucci S, Ricciardi L, Ginervino M, Caltagirone C, Bentivoglio AR, Valente EM, Bozzali M (2016). Brain connectivity changes in autosomal recessive Parkinson disease: a model for the sporadic form. *PlosONE*, 11(10):e0163980.
22. **Makovac E**, Watson D, Meeten F, Garfinkel NS, M. Cercignani, Critchley, H, Ottaviani C (2016). Amygdala Functional Connectivity as a Longitudinal Biomarker of Symptom Changes in Generalized Anxiety: Predictive Role of Emotion Regulation Indices. *Social Cognitive & Affective Neuroscience (SCAN)*, 11(11): 1719-1728.

23. Ottaviani C, Watson DR, Meeten F, **Makovac E**, Garfinkel S, Critchley, HD (2016). Neurobiological substrates of cognitive rigidity and autonomic inflexibility in generalized anxiety disorder I. *Biological Psychology*, 119: 31-41.
24. **Makovac E**, Meeten F, Watson D, Garfinkel NS, Critchley, H, Ottaviani C (2015). Neurostructural Abnormalities Associated with Axes of Emotion Dysregulation in Generalized Anxiety. *Neuroimage: Clinical*, 10: 172-81.
25. **Makovac E**, Serra L, Spanò B, Dayan M, Giulietti G, Torso M, Cercignani M, Caltagirone C, Bozzali M (2016). Different patterns of White matter and Grey matter correlation accounts for Behavioural and Psychological symptoms in Alzheimer's disease. *Journal of Alzheimer's disease*, 50(2): 591-604.
26. Serra L, Cercignani M, Mastropasqua C, Torso M, Spanò B, **Makovac E**, Viola V, Giulietti G, Marra C, Caltagirone C, Bozzali M (2016). Longitudinal Changes in Functional Brain Connectivity Predicts Conversion to Alzheimer's Disease. *Journal of Alzheimer's disease*, 51(2): 377-89
27. **Makovac E**, Meeten F, Watson D, Herman A, Garfinkel NS, Critchley, H, Ottaviani C (2015). Alterations in Amygdala-Prefrontal Functional Connectivity Account for Excessive Worry and Autonomic Dysregulation in Generalized Anxiety Disorder. *Biological Psychiatry*, 80(10): 786-795.
28. **Makovac E**, Garfinkel NS, Bassi A, Basile B, Macaluso E, Cercignani M, Calcagnini G, Mattei E, Agalliu D, Cortelli P, Caltagirone C, Bozzali M, Critchley H (2015). Effect of parasympathetic stimulation on brain activity during processing of fearful expressions. *Neuropsychopharmacology*, 40(7): 1649-58.
29. **Makovac E**, Buonocore A, McIntosh R (2015). Audio-visual integration and saccadic inhibition. *Quarterly journal of experimental psychology*, 19: 1-11.
30. Serra L, Silvestri G, Petrucci A, Basile B, Masciullo M, **Makovac E**, Torso M, Spanò B, Mastropasqua C, Harrison NA, Bianchi ML, Giacanelli M, Caltagirone C, Cercignani M, Bozzali M (2014). Abnormal functional brain connectivity and personality traits in myotonic dystrophy type 1. *JAMA Neurology*, 71(5): 603-11.
31. **Makovac E**, Kwok SC, Gerbino W (2014). Attentional cueing by cross-modal congruency produces both facilitation and inhibition on short-term visual recognition. *Acta Psychol (Amst)*, 75-83.
32. **Makovac E** & Gerbino W (2013). Color selectivity of the spatial congruency effect: evidence from the focused attention paradigm. *The Journal of General Psychology*, 141 (1): 1-17.
33. Serra L, Fadda L, Perri R, Spanò B, Marra C, Castelli D, Torso M, **Makovac E**, Cercignani M, Caltagirone C, Bozzali M (2013). Constructional Apraxia as a Distinctive Cognitive and Structural Brain Feature of Pre-Senile Alzheimer's Disease. *Journal of Alzheimer's disease*, 38(2): 391-402.
34. **Makovac E** & Gerbino W (2010). Sound-shape congruency affects the multisensory response enhancement. *Visual Cognition*, 18(1): 133-137.

BOOK CHAPTERS

Elena Makovac, Lincoln M. Tracy, Julian Koenig. **Autonomic Nervous System Activity in Itch and Pain**. IASP press.

RECENT TALKS

- **September 2022**. Invited talk during the European Pain Federation Conference in Dublin, UK.
- **June 2021**. Invited panellist for the webinar "Research in the COVID time". European Pain Federation.
- **May 2020**. St George's University London Symposium, Invited talk; title 'Interactions between the autonomic nervous system and mechanisms of pain'.

- Co-chairing the symposium at the American Psychosomatic Society 2018 annual meeting: 'From body to mind -and vice versa- via heart rate variability'.
- **Makovac E (2019)**. 'The association between pain-induced autonomic reactivity and conditioned pain modulation is mediated by the periaqueductal grey'. Vancouver, 05-09 March. American Psychosomatic Society, annual meeting.
- **Makovac E (2017)**. 'Fear processing is differentially affected by lateralized stimulation of carotid baroreceptors'. Society for Psychophysiological Research annual meeting. Vienna, 12-15 October 2017.