

## Supplementary S3—five database searches of 22 March 2026 for the keywords burnout AND (neural correlates OR neuroimaging OR functional connectivity OR brain structure OR neurobiological mechanisms), with the limit of results from 2025.

The purpose of conducting these searches was to determine if the search on 1 January 2026, associated with **Supplementary S1**, missed relevant included studies. Of the 56 returns from all of these searches (Google Scholar (n = 23)+Ovid (Medline (n = 13)+PubMed (n = 2)+ Scopus (n = 2)+ Webs of Science (n = 16)), there was a return of one additional study recognized in each of Google Scholar, Ovid (Medline), and Web of Science. This study was recognized as ref.[66] through an additional investigation before the 22 March 2026 search while writing the text for the associated manuscript. The included studies in this subsequent search that are in common with the search on 1 January 2026 are refs. [43], [44], [46], and [47]. The citations of included studies lacking from this additional search are ref. [42] and ref. [45].

The demonstration is that, with the addition of the keywords from this search on 22 March 2026,, ref. [66] would have been an additional included study [66]. However, the Google Scholar search on 26 January of “role of the dorso-lateral prefrontal cortex and precuneus in burnout” identified this report, permitting its assessment in conjunction with those of ref. [47] in the manuscript.

Nevertheless, the first search and this subsequent search of the five databases were unable to identify two other relevant manuscripts—ref. [69] and ref. [88]. As both articles included all the keywords “brain changes”, “burnout”, and “2025”, it is unknown why neither search returned them.

### S1. Google Scholar

#### S1.1. Date:

22 March 2026

#### S1.2. Keywords:

Keywords: "burnout" AND ("neural correlates" "neuroimaging" "functional connectivity" "brain structure" "neurobiological mechanisms") Limit: Since 2025

#### S1.3. Overall results:

23 Results

Not in English (n = 1)

Not a peer-reviewed journal (n = 4)

Not an empirical study (n = 6)

No burnout (n = 10)

Included (n = 2)

#### S1.4. Details:

[1]

[\[PDF\] frontiersin.org](#)

*Abnormal intrinsic functional hubs and connectivity in nurses with occupational burnout: a resting-state fMRI study* [44]

JP Liu, SY Gu, CM Song, HC Yang, Y Shi... - Frontiers in Public ..., 2025 - frontiersin.org

... hubs, and subsequent **functional connectivity** (FC) analysis ... understanding of **burnout's neurobiological mechanisms** and ... investigated the **neural correlates** of occupational **burnout** in ...

[2]

[PDF] [frontiersin.org](https://www.frontiersin.org)

*Transcriptional and neurotransmitter signatures of cerebral spontaneous neural activity in nurses with burnout* [66]

CM Song, JP Liu, HC Yang, QH Li, S Wang... - *Frontiers in Public Health*, 2025 - [frontiersin.org](https://www.frontiersin.org)

... **functional connectivity** (FC), correlating findings with **burnout** (... on the **neurobiological mechanisms** of **burnout** in nurses. ... unclear whether the **neural correlates** of **burnout** identified in ...

[3]

[PDF] [ssrn.com](https://ssrn.com)

*Neuropsychological Mechanisms of Emotional Burnout in Volunteers: Social and Systemic Factors*

V Pavliev - Available at SSRN 5832625, 2025 - [papers.ssrn.com](https://papers.ssrn.com)

... interplay of **neurobiological mechanisms** and chronic ... ) manifest in volunteers, and what **neural correlates** underpin them? (3) ... In **burnout**, **functional connectivity** between the PFC and ...

[4]

*Neural correlates of shift work in nurses: Alterations in cortical gyrification and functional connectivity*

L Lu, L Zhu, N Jiang, Y Xia, Y Zhang, J Li, C Xu... - *Sleep Medicine*, 2025 - Elsevier

... in **brain structure** and ... **neurobiological mechanisms** underlying the clinical symptoms observed in night-shift nurses, with a focus on cortical morphology and **functional connectivity**...

[5]

[HTML] [mdpi.com](https://mdpi.com)

*Mindfulness-based cognitive therapy in clinical practice: A systematic review of neurocognitive outcomes and applications for mental health and well-being*

E Gkintoni, SP Vassilopoulos, G Nikolaou - *Journal of clinical medicine*, 2025 - [mdpi.com](https://mdpi.com)

... and the underlying **neurobiological mechanisms**. This study ... of this review analyzes the **neural correlates** of well-being ... in the amygdala, improved **functional connectivity** between the ...

[6]

*The Brain-Wellness Nexus: exploring neurobiological mechanisms and evidence-based interventions for stress resilience in neurodivergent populations*

R Belaich - *Cognitive Neuropsychiatry*, 2025 - Taylor & Francis

... ) have demonstrated the **neural correlates** of stress reactivity, ... ACC, as measured by **functional connectivity** analysis. These ... these populations to reduce **burnout** and enhance emotional ...

[7]

[PDF] [researchgate.net](https://researchgate.net)

*THE NEUROSCIENCE OF RESILIENCE: HOW THE BRAIN ADAPTS TO STRESS AND TRAUMA*

M Sultana - *Global Dimensions of Multidisciplinary Research*, 2025 - [researchgate.net](https://researchgate.net)

... This research explores the **neurobiological mechanisms** that ... inconsistencies in interpreting **neural correlates** of resilience. ... (DTI) and **functional connectivity** analysis could provide ...

[8]

[PDF] [researchsquare.com](https://researchsquare.com)

*Mindfulness-induced modulation of resting-state networks functional connectivity in depressed adults: A systematic review*

E Durán, M Vázquez-Frutos, E Alcocer, FM Ocaña - 2025 - [researchsquare.com](https://researchsquare.com)

... **functional connectivity** (FC) of RSNs, this article intends to shed some light on the **neurobiological mechanisms** ... usually experience alarming rates of **burnout**, depression, and emotional ...

[9]

[HTML] [mdpi.com](https://www.mdpi.com)

[HTML] *Early Life Adversity and Disordered Eating: Cognitive and Neural Mechanisms*

Y Luo, J Zhang, H Chen - Behavioral Sciences, 2025 - [mdpi.com](https://www.mdpi.com)

... Early life adversity brings changes to **brain structure**, function... can predict both **functional connectivity** between the bilateral ... the precise **neurobiological mechanisms** that causally ...

[10]

[PDF] [researchsquare.com](https://www.researchsquare.com)

*Bridging Brain and Mind: A Transdiagnostic Review of Anguish, Anxiety, and Depression*

FFP Vieira - 2025 - [researchsquare.com](https://www.researchsquare.com)

... pathways and altered **functional connectivity** within default mode, ... investigating brain circuits, **neurobiological mechanisms** (eg, ... Structural **neuroimaging** consistently reported reduced ...

[11]

*Seeking the neural basis of neuropsychiatric symptoms in dementia: neuroimaging findings and controversies*

D Sone, S Shinagawa - Frontiers in Aging Neuroscience, 2025 - [frontiersin.org](https://www.frontiersin.org)

... findings, thus greatly advancing **neuroimaging** research. ... investigations of the **neurobiological mechanisms** underlying NPS. ... symptoms with their underlying **neural correlates**, it is also ...

[12]

[HTML] [nih.gov](https://www.nih.gov)

[HTML] *Neural mechanisms during role-playing in music psychodrama: an fNIRS Hyperscanning study*

Y Wang, Y Zhang, Y Jiang, Y Yao, F Zhao... - Frontiers in ..., 2026 - [pmc.ncbi.nlm.nih.gov](https://www.ncbi.nlm.nih.gov/pmc)

... improvisation enhances **functional connectivity** within emotion- ... on the mechanisms and **neural correlates** of musical psychodrama ... of the **neurobiological mechanisms** underlying music ...

[13]

[PDF] [ssrn.com](https://www.ssrn.com)

*Dissecting Narcissism: Epidemiology, Empathy Pathology, and Structural-Defensive Neurobiology*

J Pereira - ..., and Structural-Defensive Neurobiology (August 30 ..., 2025 - [papers.ssrn.com](https://www.papers.ssrn.com)

... **Functional connectivity** analyses reveal disrupted ... insights into the **neurobiological mechanisms** of narcissistic ... on promoting positive changes in **brain structure** and function through ...

[14]

[HTML] [mdpi.com](https://www.mdpi.com)

[HTML] *Countering climate fear with mindfulness: a framework for sustainable behavioral change*

L Poonamallee - Sustainability, 2025 - [mdpi.com](https://www.mdpi.com)

... can sustain engagement without **burnout** and offers practical ... showed stronger **functional connectivity** between DMN ... induces measurable changes in **brain structure** and function. ...

[15]

*From "Little m" to "Big M" Mindfulness: A Neurodevelopmental and Clinical Perspective on the States and Stages of Mindfulness and Compassion*

DR Vago, S Matwin - Handbook of Mindfulness and Self-Regulation ..., 2025 - Springer

... in attempts to synthesize **neuroimaging** findings, such as ... can lead to empathic distress or **burnout**. The Halifax model ... constructs, such as **functional connectivity** patterns across four ...

[16]

[\[PDF\] biorxiv.org](#)

*Predicting stress response trajectories: Differential contributions of limbic and prefrontal regions to cortisol and affective responses*

[R Lipka](#), [L Kreuzpointner](#), [C Bärtil](#), [M Giglberger](#)... - bioRxiv, 2025 - biorxiv.org

... Human studies linking **brain structure** and cortisol responses have mainly used structural and ... However, the **neurobiological mechanisms** underlying these patterns remain insufficiently ...

[17]

[\[PDF\] lsu.lt](#)

*Effect of mental health on information retention*

[U Abdulkhadar](#) - 2025 - vb.lsu.lt

... Several **neurobiological mechanisms** underlie the relationship between mental fatigue and information ... Discriminative analysis of brain **functional connectivity** patterns for mental fatigue ...

[18]

*The Impact of Dual-Task Training Versus Single-Task Training on Cognitive and Physical Function in Neurologically Impaired Individuals: A Systematic Review and ...*

[N Zainol Abidin](#), [NS Mansor](#)... - ... and Motor Skills, 2025 - journals.sagepub.com

... than invoking speculative **neurobiological mechanisms**, our ... learning efficiency, preventing **burnout**, and promoting ... **brain structure**, neural activation, and **functional connectivity** in both ...

[19]

[\[PDF\] osf.io](#)

*[PDF] Music-Based Digital Therapeutics for Stress, Anxiety, and Depressive Mood*

[T Venkatesana](#), [AM Demetrioua](#), [DL Bowlingc](#) - osf.io

... **Functional connectivity** analyses of fMRI data further reveal that pleasurable music listening enhances temporal coupling between key reward system nodes (eg, the nucleus accumbens...

[20]

[\[PDF\] escap.eu](#)

*[PDF] Single-cell RNA sequencing study reveals the potential role of the RPS26 gene in attention deficit/hyperactivity disorder (16285)*

[SC Li](#), [SY Lee](#), [HC Kuo](#)<sup>1</sup> - escap.eu

... reducing the risk of **burnout**. The presentation concludes that ... analysis aimed to identify the **neural correlates** of ED using a ... insights into the **functional connectivity** and broader brain ...

[21]

*[PDF] The Impact of Transcutaneous Auricular Vagus Nerve Stimulation on Human Cognitive and Affective Processes: A PRISMA Systematic Review*

[A Aranberri](#) - Authorea Preprints, 2025 - authorea.com

... underpinned by **neurobiological mechanisms** involving, ... action planning and its **neural correlates**. In a controlled active–... total errors only in the non-**burnout** group (post hoc OR = 0.76...

[22]

*[BOOK] Mindfulness-based play therapy: A transtheoretical and neurobiological approach to psychotherapy with children and families*

[LL Wonders](#) - 2025 - api.taylorfrancis.com

... on the interconnectedness of **neurobiological mechanisms**, child ... , reduce stress, and prevent **burnout**. Both therapist and client ... Is meditation associated with altered **brain structure**? A ...

[23]

*Dėmesingo įsisąmoninimo poveikis skausmo tolerancijai ir patiriamam distresui šalčio testo metu*

K Leunartaitytė - 2025 - [search.proquest.com](https://search.proquest.com)

Jau kurį laiką dėmesingu įsisąmoninimu (DI) grįsti tyrimų rezultatai atskleidžia, kad DI intervencijos gali būti puikus skausmo mažinimo būdas (McClintock ir kt., 2019). Tačiau, vis dar ...

## S2. Ovid (Medline)

### S2.1. Date:

22 March 2026

### S2.2. Keywords:

Keywords: burnout and (neural correlates or neuroimaging or functional connectivity or brain structure or neurobiological mechanisms. Limits: 2025, Articles, Clinical studies.

### S2.3. Overall results:

13 results

**Duplicate** (n = 2)

Not a peer-reviewed journal (n = 1)

Not an empirical study (n = 6)

**No brain changes** (n = 1)

**Included** (n = 3)

### S2.4. Details:

[1]

Unique Identifier 39975915

Title

*Learning neuroimaging models from health system-scale data.*

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.21203/rs.3...>- opens in a new window

Source Research Square. 2025 Feb 07.

Authors Lyu Y; Harake S; Chowdury A; Banerjee S; Gologorsky R; Liu S; Meissner AK; Rao A; Kondepudi A; Jiang C; Hou X; Joshi R; Neuschmelting V; Srinivasan A; Kleindorfer D; Athey B; Gulani V; Pandey A; Lee H; Hollon T

Authors Full Name Lyu, Yiwei; Harake, Samir; Chowdury, Asadur; Banerjee, Soumyanil; Gologorsky, Rachel; Liu, Shixuan; Meissner, Anna-Katharina; Rao, Akshay; Kondepudi, Akhil; Jiang, Cheng; Hou, Xinhai; Joshi, Rushikesh; Neuschmelting, Volker; Srinivasan, Ashok; Kleindorfer, Dawn; Athey, Brian; Gulani, Vikas; Pandey, Aditya; Lee, Honglak; Hollon, Todd.

Publication Type Journal Article. Preprint.

[2]

Unique Identifier 41186097

Title

*Neurobiological and emotional impact of occupational stress in frontline police officers: a neuroimaging and neurochemical study.* [46]

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.1080/20008...>- opens in a new window

Source European Journal of Psychotraumatology. 16(1):2572187, 2025 Dec.

Authors Wang WY; Lin YC; Liu YH; Lee PL; Lin SN; Chang LH; Lin CP

Authors Full Name Wang, Wen-Yu; Lin, Yi-Cheng; Liu, Yi-Hsuan; Lee, Pei-Lin; Lin, Shang-Hua N; Chang, Li-Hung; Lin, Ching-Po.

Publication Type Journal Article.

[3]

Unique Identifier 40208718

Title

*Neural correlates of well-being in young adults.* [47]

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.1037/emo00...>- opens in a new window

Source Emotion. 25(7):1677-1689, 2025 Oct.

Authors Green KH; van de Groep S; van der Crujisen R; Warnert EAH; Crone EA

Authors Full Name Green, Kayla H; van de Groep, Suzanne; van der Crujsen, Renske; Warnert, Esther A H; Crone, Eveline A.

Publication Type Journal Article.

[4]

Unique Identifier 40943301

Title

*Burnout and the Brain-A Mechanistic Review of Magnetic Resonance Imaging (MRI) Studies. [Review]*

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.3390/ijms2...>- opens in a new window

Source International Journal of Molecular Sciences. 26(17), 2025 Aug 28.

Authors Chmiel J; Kurpas D

Authors Full Name Chmiel, James; Kurpas, Donata.

Publication Type Journal Article. Review.

[5]

Unique Identifier 40917413

Title

*Transcriptional and neurotransmitter signatures of cerebral spontaneous neural activity in nurses with burnout. [66]*

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.3389/fpubh...>- opens in a new window

Source Frontiers in Public Health. 13:1630294, 2025.

Authors Song CM; Liu JP; Yang HC; Li QH; Wang S; Chen HJ; Wang SF; Chen L; Gu SY; Zhang F; Pan PL

Authors Full Name Song, Chun-Mei; Liu, Jian-Ping; Yang, Hu-Cheng; Li, Qing-He; Wang, Shu; Chen, Hai-Juan; Wang, Shu-Fang; Chen, Li; Gu, Si-Yu; Zhang, Feng; Pan, Ping-Lei.

Publication Type Journal Article.

[6]

Unique Identifier 40589802

Title

*Abnormal intrinsic functional hubs and connectivity in nurses with occupational burnout: a resting-state fMRI study. [44]*

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.3389/fpubh...>- opens in a new window

Source Frontiers in Public Health. 13:1595550, 2025.

Authors Liu JP; Gu SY; Song CM; Yang HC; Shi Y; Gu YF; Wang SF; Chen YZ

Authors Full Name Liu, Jian-Ping; Gu, Si-Yu; Song, Chun-Mei; Yang, Hu-Cheng; Shi, Yang; Gu, Yu-Fang; Wang, Shu-Fang; Chen, Ying-Zhu.

Publication Type Journal Article.

[7]

Unique Identifier 40331113

Title

*The application of fNIRS in studies on occupational workload: a systematic review.*

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.3389/fpubh...>- opens in a new window

Source Frontiers in Public Health. 13:1560605, 2025.

Authors Gemmerich R; Muller O; Schaller A

Authors Full Name Gemmerich, Robin; Muller, Ole; Schaller, Andrea.

Publication Type Journal Article. Systematic Review.

[8]

Unique Identifier 40081793

Title

*Neuronal and therapeutic perspectives on empathic pain: A rational insight. [Review]*

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.1016/j.neu...-> opens in a new window

Source Neuropharmacology. 272:110414, 2025 Jul 01.

Authors Kujur PP; Ellappan S; Mondal AC

Authors Full Name Kujur, Punit Prasanna; Ellappan, Surendar; Mondal, Amal Chandra.

Publication Type Journal Article. Review.

[9]

Unique Identifier 41262963

Title

*Reducing healthcare burnout through meditation: benefits and challenges. [Review]*

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.1080/28324...-> opens in a new window

Source Cogent Mental Health. 4(1):2477699, 2025.

Authors Fnu V; Rajasekaran D; Pilaniya A; Aggarwal K; Virmani M; Gupta A; Jain R

Authors Full Name Fnu, Varnika; Rajasekaran, Divya; Pilaniya, Anamika; Aggarwal, Kanishk; Virmani, Mini; Gupta, Aachal; Jain, Rohit.

Publication Type Journal Article. Review.

[10]

Unique Identifier 40806977

Title

*Neural Correlates of Burnout Syndrome Based on Electroencephalography (EEG)-A Mechanistic Review and Discussion of Burnout Syndrome Cognitive Bias Theory. [Review]*

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.3390/jcm14...-> opens in a new window

Source Journal of Clinical Medicine. 14(15), 2025 Jul 29.

Authors Chmiel J; Malinowska A

Authors Full Name Chmiel, James; Malinowska, Agnieszka.

Publication Type Journal Article. Review.

[11]

Unique Identifier 40589658

Title

*Factors associated with symptom severity in stress-induced exhaustion disorder: cohort characterization and cross-sectional correlations.*

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.3389/fpsy...-> opens in a new window

Source Frontiers in psychiatry Frontiers Research Foundation. 16:1548967, 2025.

Authors Arthur Cully S; Hatnova K; van de Leur JC; Bjornsdotter M

Authors Full Name Arthur Cully, Sean; Hatnova, Klara; van de Leur, Jakob Clason; Bjornsdotter, Malin.

Publication Type Journal Article.

[12]

Unique Identifier 40519831

Title

*From adversity to adaptation: the struggle between resilience and athlete burnout in stressful situations. [Review]*

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.3389/fpsyg...-> opens in a new window

Source Frontiers in Psychology. 16:1578198, 2025.

Authors Cai C; Mei Z; Yang Y; Luo S

Authors Full Name Cai, Chenyi; Mei, Zhengyang; Yang, Yang; Luo, Shi.

Publication Type Journal Article. Review.

[13]



Unique Identifier 39963391

Title

*Functional connectivity in burnout syndrome: a resting-state EEG study.* [43]

Digital Object Identifier <https://dx-doi-org.myaccess.library.utoronto.ca/10.3389/fnhum...>- opens in a new window

Source Frontiers in Human Neuroscience. 19:1481760, 2025.

Authors Afek N; Harmatiuk D; Gawlowska M; Ferreira JMA; Golonka K; Tukaiev S; Popov A; Marek T

Authors Full Name Afek, Natalia; Harmatiuk, Dmytro; Gawlowska, Magda; Ferreira, Joao Miguel Alves; Golonka, Krystyna; Tukaiev, Sergii; Popov, Anton; Marek, Tadeusz.

Publication Type Journal Article.

### S3. PubMed

#### S3.1. Date:

22 March 2026

#### S3.2. Keywords:

Keywords: burnout and (neural correlates or neuroimaging or functional connectivity or brain structure or neuro-biological mechanisms. Limits: 2025, Articles, Clinical study.

#### S3.3. Overall results:

2 results

**No brain changes** (n = 2)

**Included (n = 0)**

#### S3.4. Details:

[1]

*High Psychological Impact of Covid-19 on French Healthcare Workers: An Observational Cohort Study of PTSD, Depression and Burn-Out.*

El-Hage W, Lemé A, Blanchin M, Bui E, Kerbage H, Ibouhsissen S, Allemang-Trivalle A, Gissot V, Gohier B, Hingray C, Birmes P, Fakra E, Prieto N, Lemogne C, Krebs MO, Aouizerate B, Jalenques I, Vidailhet P, Sauvaget A, Caille A. Health Expect. 2025 Aug;28(4):e70401. doi: 10.1111/hex.70401.

PMID: 40836788 Free PMC article.

Our study aimed to assess the psychological outcomes of French HCWs during the Covid-19 pandemic, including PTSD, depression and burn-out. ...Higher levels of positivity-defined as a general tendency to view life and experiences with an optimistic and constructive outlook, ...

[2]

*The association between ambiguity tolerance and psychological well-being among physical therapists engaged in geriatric rehabilitation: A multicentre collaborative cross-sectional study.*

Tamura S, Hiratsuka K, Oonuki M, Yokochi M, Matsuzaka D, Satou Y, Ishikawa N, Tai M, Kikuchi K, Kuneta R, Ooya M, Kakiuchi K, Matsuda R.

Clin Rehabil. 2025 Mar;39(3):366-376. doi: 10.1177/02692155241310324. Epub 2025 Jan 3.

PMID: 39748668

Sub-group analyses revealed that in the group with less than five years' experience, need for complexity was not associated with burnout, and in men, there were no significant variables for compassion fatigue and quick inventory of depressive symptomatology. Conclusions Amon ...

## S4. Scopus

### S4.1. Date:

22 March 2026

### S4.2. Keywords:

Keywords: burnout and (neural correlates or neuroimaging or functional connectivity or brain structure or neuro-biological mechanisms. Limits: 2025, Articles, Clinical study.

### S4.3. Overall results:

2 results

**Duplicate** (n = 2)

**Included** (n = 0)

### S4.4. Details:

Article • Open access

[1]

*Abnormal intrinsic functional hubs and connectivity in nurses with occupational burnout: a resting-state fMRI study*

Liu, J.-P., Gu, S.-Y., Song, C.-M., ... Wang, S.-F., Chen, Y.-Z.

Frontiers in Public Health

, 13, 1595550

[2025]

[0]

[2]

*Functional connectivity in burnout syndrome: a resting-state EEG study*

Afek, N., Harmatiuk, D., Gawłowska, M., ... Popov, A., Marek, T.

Frontiers in Human Neuroscience

, 19, 1481760

[2025]

[4]

## S5. Web of Science

### S5.1. Date:

22 March 2026

### S5.3. Overall results:

16 Results

**Duplicate** (n = 5)

**Not an empirical study** (n = 1)

**No burnout** (n = 9)

**Irrelevant information on brain changes** (n = 1)

**Included (n = 0)**

### S5.4. Details:

[1]

**Functional connectivity in burnout syndrome: a resting-state EEG study** [43]

Semantic search result

Afek, N; Harmatiuk, D; (...); Marek, T

Feb 3 2025

FRONTIERS IN HUMAN NEUROSCIENCE

19

Enriched Cited References

*Chronic occupational stress is associated with a pronounced decline in emotional and cognitive functioning. Studies on neural mechanisms indicate significant changes in brain activity and changed patterns of event-related potentials in burnout subjects. This study presents an analysis of brain functional connectivity in a resting state, thus providing a deeper understanding of the mechanisms ac*

[2]

**Abnormal intrinsic functional hubs and connectivity in nurses with occupational burnout: a resting-state fMRI study** [44]

Semantic search result

Liu, JP; Gu, SY; (...); Chen, YZ

Jun 16 2025

FRONTIERS IN PUBLIC HEALTH

13

*Background Occupational burnout is a significant problem among nurses, linked to negative outcomes. Understanding its neurobiological basis is crucial, yet remains limited. Methods Resting-state functional magnetic resonance imaging (rs-fMRI) data were acquired from 40 female nurses with occupational burnout and 40 healthy controls. Degree centrality (DC) was calculated to identify functional hu*

[3]

**Neural Correlates of Well-Being in Young Adults** [47]

Green, KH; van de Groep, S; (...); Crone, EA

Oct 2025

EMOTION

25(7), pp.1677-1689

*Subjective experiences of well-being are multifaceted in nature, but the behavioral and neural correlates of subdomains of well-being are not yet well understood. Prior neuroimaging studies have primarily focused on single aspects of well-being (e.g., happiness). In the present study, we differentiated between five domains of well-being based on prior research (Green, van de Groep, et al., 2023*

[4]

**Neurobiological and emotional impact of occupational stress in frontline police officers: a neuroimaging and neurochemical study [46]**

Wang, WY; Lin, YC; (...); Lin, CP

Dec 31 2025

EUROPEAN JOURNAL OF PSYCHOTRAUMATOLOGY

16(1)

Enriched Cited References

*Background: Frontline police work demands continuous vigilance and rapid decision-making. These challenges engage neuroplastic adaptations in brain regions critical for threat processing and emotional regulation. However, the influence of chronic occupational stress on officers' emotional states, brain structure, and neurochemical regulation remains underexplored. Objective: To examine the asso*

[5]

**Functional Brain Connectivity During Stress Induction and Recovery: Normal Subjects**

Semantic search result

Kim, J and Choi, MH

Sep 4 2025

APPLIED SCIENCES-BASEL

15(17)

Enriched Cited References

*This study aimed to compare the changes in brain functional connectivity between states of stress induction and recovery in mentally stable, healthy individuals to investigate the effects of stress on brain networks. We selected a stable group comprising 20 healthy adults with Perceived Stress Scale scores of 0-13 points and a mean age of 24.4 +/- 4.3 years. We used the Montreal Imaging Stress*

[6]

**The efficacy of emotional freedom techniques and tapping in reducing job stress and burnout: a review of research**

Rizzo, A; Laachi, S; (...); Chirico, F

Dec 1 2025

MENTAL HEALTH AND SOCIAL INCLUSION

29(6), pp.782-799

*PurposeAlthough emotional freedom techniques (EFT) have shown efficacy in treating various psychological conditions, their application to occupational stress remains underexplored. This paper aims to investigate the potential of EFT tapping as an intervention for managing job stress and preventing burnout in workplace environments. Traditional interventions often emphasize cognitive or organiza*

[7]

**Training the Brain Health Workforce of Tomorrow: The Role of Trainees in Shaping Integrated, Preventive, and Equitable Brain Care**

Accorroni, A; Zani, D; (...); Corre, V

Sep 15 2025

CLINICAL AND TRANSLATIONAL NEUROSCIENCE

9(3)

Enriched Cited References

*The concept of Brain Health is transforming the neuroscientific landscape, promoting an integrative and preventive approach to care under a unifying vision. This position paper, developed by Swiss junior societies in neurology and psychiatry, presents a trainee perspective on how Brain Health should be addressed from the earliest stages of postgraduate training. It explores current gaps in post*

[8]

**Healthcare professionals' perspectives on peer support in post-rehabilitation care for individuals with acquired brain injury: a qualitative study**

Voorn, MJJ; Verlinden, JMWF; (...); Huijnen, IPJ

Dec 24 2025

BMC HEALTH SERVICES RESEARCH

26(1)

Enriched Cited References

*Background* Acquired brain injury (ABI) can pose significant challenges, particularly during the transition from rehabilitation to independent living. Peer support, provided by individuals with similar experiences, may enhance self-management, emotional well-being, and coping strategies. Understanding healthcare professionals' perspectives is essential for successful implementation in post-rehabilitation

[9]

**Neuronal and therapeutic perspectives on empathic pain: A rational insight**

Kujur, PP; Ellappan, S and Mondal, AC

Jul 1 2025

NEUROPHARMACOLOGY

272

*Empathy is the capacity to experience and understand the feelings of others, thereby playing a key role in a person's mental well-being essentially by promoting kindness and a sense of belongingness to the group. However, too much empathy may result in psychological problems such as empathic distress, compassion fatigue, and burnout, collectively termed empathic pain. Several brain regions are*

[10]

**Achievement Goal-Directed Mechanism Connecting Conscientiousness to Inefficacy: Evidence From Resting-State fMRI**

Zhong, ZQ; Ren, H and Wang, S

Jul 2025

JOURNAL OF ORGANIZATIONAL BEHAVIOR

46(6), pp.889-905

Enriched Cited References

*Inefficacy plays a crucial role in the manifestation of burnout, leading to various adverse outcomes for employees and organizations. Although previous studies have empirically demonstrated that individuals with high conscientiousness are less prone to experiencing inefficacy, this relationship remains undertheorized. Leveraging the theory of purposeful work behavior and the organizational cogn*

[11]

**Factors associated with symptom severity in stress-induced exhaustion disorder: cohort characterization and cross-sectional correlations**

Cully, SA; Hatinova, K; (...); Bjoernsdotter, M

Jun 16 2025

FRONTIERS IN PSYCHIATRY

16

*Introduction* Chronic stress-related conditions such as burnout and exhaustion disorder (ED) constitute a significant and growing individual and societal burden. Still, the long-term interactions between symptoms and key risk factors, including brain structure and function, remain poorly understood. To address this knowledge gap, we initiated the PROMUS project, a large-scale longitudinal brain

[12]

**Psychometric validation of the European Portuguese version of the Fatigue and Altered Cognition Scale (FACs)**

Fernandes, C; Baylina, P; (...); Barros, C

Sep 2025 (Early Access)

APPLIED NEUROPSYCHOLOGY-ADULT

Enriched Cited References

*Background* Fatigue and "brain fog" are symptoms that may arise from lifestyle factors and various clinical conditions. Despite their significant impact on daily functioning, there is a lack of psychometrically robust instruments to measure their co-occurrence. The Fatigue and Altered Cognition Scale (FACs) was developed to address this gap, allowing the assessment of central fatigue and cognitiv

[13]

*Brief mindfulness coaching enhances selective attention in medical scientists: A pilot study*

Jaiswal, S; Nan, JS; (...); Mishra, J

Sep 12 2025

PLOS ONE

20(9)

*Medical scientists have dual commitments to clinical care and research efforts. Such commitments can create hectic and stressful work schedules, which may impact on well-being and cognition. In this study, we tested the hypothesis that brief mindfulness coaching (three 1.5 hour online group sessions over 12 weeks) can benefit medical scientists. We conducted a waitlist-controlled intervention s*

[14]

*Perspectives of Mauritians living with neurological disability and their family caregivers during the COVID-19 lockdown: a thematic analysis from an African nation*

Soll, BA; Oxenham, V; (...); Reebye, R

Oct 2 2025

PAN AFRICAN MEDICAL JOURNAL

52

*Introduction: Mauritians living with neurological disability face limited medical care, accessibility issues, and cultural stigma, which prevent community reintegration. We aimed to investigate the perspectives of Mauritians with neurological disability and their family caregivers during COVID-19 lockdown. Methods: following a phenomenological epistemology, this qualitative study employed an in*

[15]

*Network Meta-Analysis of 4 Rehabilitation Methods With rTMS on Upper Limb Function and Daily Activities in Patients With Stroke*

Lin, XY; Li, HJ; (...); Wu, X

Sep 2025

STROKE

56(9), pp.2644-2657

*BACKGROUND: Stroke is one of the leading causes of disability and death worldwide, often leading to physical paralysis and cognitive dysfunction, seriously affecting patients' quality of life, and increasing economic burden. Repetitive transcranial magnetic stimulation (rTMS), a noninvasive brain stimulation technique, has been used in stroke rehabilitation, but the difference in efficacy among*

Co-citation map

Related records

[16]

*Transcriptional and neurotransmitter signatures of cerebral spontaneous neural activity in nurses with burnout* [66]

Song, CM; Liu, JP; (...); Pan, PL

Aug 21 2025

## FRONTIERS IN PUBLIC HEALTH

13

## Enriched Cited References

*Objective* To investigate the neural and molecular correlates of occupational burnout in nurses by integrating resting-state fMRI (rs-fMRI), clinical assessments, brain-wide gene expression, and neurotransmitter atlases. *Methods* Fifty-one female nurses meeting burnout criteria and 51 matched healthy controls underwent 3 T rs-fMRI. We analyzed fractional amplitude of low-frequency fluctuations (fA