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an enduring stressful situation. Cognitive control trainings targeting inhibitory control over negative emotional information might help those who react to an actual naturalistic stressors with increased rumination, pointing out the need for identifying people who are at risk in times of stress.

Conflict of interest
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References
[1] Shackman, A.J., Salomon, T.V., Slagter, H.A., Fox, A.S., Winter, J.J., Davidson, R.J., 2011. The integration of negative affect, pain and cognitive control in the cingulate cortex. Nat Rev Neurosci 12 (3), 154-167.
[2] Kovacs, L.N., Baksa, D., Eszlári, N., Gecse, K., Kocsel, N., Juhász, G., Kökönyei, Gy., 2021. Perceived stress in the time of COVID-19: the association with brooding and COVID-related rumination in adults with and without migraine. BMC Psychol 9 (1), 68.
[3] Etkin, A., Egner, T., Peraza, D.M., Kandel, E.R., Hirsch, J., 2006. Resolving emotional conflict: A role for the rostral anterior cingulate cortex in modulating activity in the amygdala. Neuron 51 (6), 871-882.
[4] Zareian, B., Wilson, J., LeMoult, J., 2021. Cognitive control and ruminative responses to stress: understanding the different facets of cognitive control. Frontiers in Psychology 12, 660062.

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P.0514
Analysis of post-COVID-19 cognitive functioning in young people with type 1 diabetes mellitus

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Introduction: Both conditions, diabetes mellitus and COVID-19, are already known as leading to cognitive dysfunction.

Aim: The level of cognitive functioning and distinct cognitive functions (CF) in particular were studied to identify the components of CF most affected by COVID-19 against the background of type 1 diabetes mellitus (T1DM).

Methods: In this study we interviewed 68 people aged 29±11 years with T1DM duration 14.25±9.25 years. The level of HbA1c was 9.5±1.5 % (80±11.1 mmol/mol). The first group (N=35) consisted of patients who did not undergo COVID-19. The second group of patients (N=33) had symptomatic COVID-19 infection of varying severity within 3 months before the examination. The assessment was performed using Mini Mental State Examination (MMSE), Montreal Cognitive Assessment (MoCA), Trail Making Test (TMT), Proof-test, Benton’s similarity test.

Table 1 Comparative results of neuropsychological tests of the studied groups

| Scale                     | T1DM-group          | T1DM+post-COVID-19-group |
|---------------------------|---------------------|--------------------------|
| MMSE                      | 30 (30;30)          | 29 (26;30)               |
| MoCA                      | 29 (28;30)*         | 26 (24;28)*              |
| TMT-A                     | 47.5 (37;65)*       | 85 (60;98)*              |
| TMT-B                     | 90 (60;120)*        | 145.5 (115;180)*         |
| Proof-test                | 0.67 (0.67;0.81)∗   | 0.68 (0.5;0.7)∗          |
| Benton’s similarity test  | 24 (22;26)∗         | 18 (16;23)∗              |
| Words memorising test a)  | 6 (4;7)∗            | 4 (4;5)∗                 |
| number of tryingsc)       | 8 (6;9)∗            | 5 (7;12)∗                |

(* p<0.05)

Summary: In 100% of interviewed individuals a decrease in the dynamics of neuropsychological processes was revealed, which manifested itself in a decrease in the volume of active attention, in concentration of attention, and increased fatigue of mental activity (Table 1).

Changes in long-term in 80% and short-term memory in 73% of cases occurred in T1DM-group, and in 81% and 94% relatively in T1DM+post-COVID-19-group.

Most of the subjects (65%) showed impairments to the function of visual-motor coordination without differences between the groups.

Damaging in the functions of thinking were detected with the lowest frequency in violation of abstract thinking-17%, violation of visual-spatial thinking-in 12% of cases, without differences in the groups.

Disturbances in the components of the structure of speech, interrelated with the process of preliminary memorization, were revealed in 65% of the interviewees, due to disturbances in the processes of coding and information extraction, caused by a decrease in neurodynamic processes.

Violation of speech fluency was detected in single (2%) cases of patients T1DM-group, T1DM+post-COVID-19-group in 27%.

The functions of perception and regulation of voluntary activity remained were intact in all examined people.

Conclusion: In this group of people with T1DM, indicators of cognitive functions were decreased, lower in the group underwent COVID-19 than in the group did not.

The analysis showed that different areas of CF related to neurodynamic processes as well speech fluency were altered statistically significant (p<0.05) greater in the first group which indicates that these phenomena may be linked in COVID-19.
The finding that specific cognitive functions are affected more is intriguing and suggests the need for further research into the mechanisms of influence of the virus and the brain areas the most susceptible to damage by COVID-19 in order to better understanding the new disease to the development of methods of prevention its impact on the human population.

No conflict of interest

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P.0515
Amygdala size associates with stress perception

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Background: Stress is largely understood as an individual and subjective perception. Indeed, depending on its type, duration, and individual vulnerability, the variable response of the subject to the stressor can be partially measured. In our group’s recent work, we have shown an association between amygdala size and perceived stress, in a healthy cohort of young adults [1]. Herein we uphold our conclusions by observing a similar association in a subset of participants that have performed a second MRI scan in a different moment.

Methods: In the present study, 21 healthy participants recruited at the School of Medicine, University of Minho, performed two individual evaluation sessions, with, at least, 8 months of span. In each session, a psychological characterization using the 10-items Perceived Stress Scale (PSS) [2] was made as well as a structural MRI scan. The imaging sessions were conducted at Hospital of Braga (Braga, Portugal) on a clinical approved Siemens Magnetom Avanto 1.5 T MRI scanner (Siemens Medical Solutions, Erlangen, Germany), using a 12-channel receive-only head coil. The 3D magnetization prepared rapid gradient echo (MPRAGE) were acquired with a repetition time (TR) = 2.73 s, echo time (TE) = 2.73 ms, 176 sagittal slices with no gap, field-of-view (FoV) = 256 mm, flip angle (FA) = 8°, in-plane resolution = 1.2 x 1.2 mm2 and slice thickness = 1.2 mm. After visual inspection, image preprocessing was made using FMRIPrep version 1.4.1 [3]. Then, the FreeSurfer derivatives of the FMRIPrep were used to compute individual volumes. For statistical analysis, both the SPSS version 23 (IBM, SPSS, Chicago, IL, USA), and JASP version 0.11.1 were used. For exploring the association between amygdala and perceived stress, multilinear regression models with volume as the dependent variable and PSS scores, age and sex as independent variables were established.

Results: Between the first and the second moment, the psychological state of the subjects differed (mean PSS difference = 2.6+/−3.8). The model computed exclusively with the data acquired on first sessions shows a positive association tendency between amygdala size and perceived stress scores, not achieving statistical significance (N = 21, PSS = 21.048 +/- 7.124; R = 0.431, Adj R² = 0.186, p = 0.310). On the second sessions model (N = 21, PSS = 21.571 +/- 7.03; R = 0.605, Adj R² = 0.255, p = 0.047), the statistical significance of the PSS independent term shows a positive association without achieving significance (B = 0.001, t = 2.025, p = 0.059). Including both sessions on a global model (N = 42, PSS = 21.310 +/- 7.031; R = 0.488, Adj R² = 0.178, p = 0.015), the positive association between amygdala volumes and perceived stress is verified (B = 0.001, t = 2.031, p = 0.049).

Conclusions: Our results sustain our previous work conclusions, in which a positive association between amygdala size and perceived stress scores is observed. Importantly, this relationship is observed when including subjects assessed at different timepoints, with distinct perceived stress levels.

No conflict of interest

References

[1] Caetano, I., Amorim, L., Soares, J.M., Ferreira, S., Coelho, A., Reis, J., Santos, N.C., Moreira, P.S., Marques, P., Magalhães, R., Esteves, M., Picó-Pérez, M., Sousa, N., 2021. Amygdala size varies with stress perception. Neurobiology of Stress 14, 100334.

[2] Cohen, S., Kamarck, T., Mermelstein, R., 1983. A Global Measure of Perceived Stress. Journal of Health and Social Behavior 24, 385.

[3] Esteban, O., Markiewicz, C.J., Blair, R.W., Moodie, C.A., Isik, A.I., Erramuzpe, A., Kent, J.D., Goncalves, M., Preu, E., Snyder, M., Oya, H., Ghosh, S.S., Wright, J., Durnez, J., Poldrack, R.A., Gorgolewski, K.J., 2018. fMRIPrep: a robust preprocessing pipeline for functional MRI. Nature Methods 16, 111-116. doi: 10.1038/s41592-018-0235-4.

P.0516
Genotype rs25531 polymorphisms and quality in peer relationships adjust the neural response of the anterior prefrontal cortex to cry

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