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The relationship between cognitive ability and positive influence

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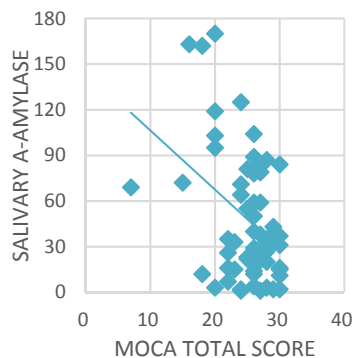Chizuko Suishu, RN Prof, Shubun University, Japan

Abstract

Introduction: Short-term memory and working memory decline with increasing age. Currently, a significant effort is being made to develop methods of maintaining these cognitive functions in aging patients. Therefore, we have, focused on mental soundness, and researched the relationships between mental health level/stress and cognition/ judgement.
Methods: Subjects: We recruited 100 people living in the area by public information in Kashihara City. It was a six month intervention, comparing the results with controls and interventions. Measurement of cognitive function: The Montreal Cognitive Assessment (MoCA-test). Measurement of emotional states: General Health Questionnaire 12 (GHQ-12). Stress check: Measured α-amylase levels of saliva taken from the sublingual gland.
Results: Results of the MoCA test : In the t-test after the intervention (implementation), positive increases in areas such as recalling animal names (reproducing ability), repetition tests (memory), digit span tasks both sequential and reverse, sustained attention, calculation (concentration, attention and memory) have been statistically significantly recognized (p/t, 5% level). As for saliva amylase that reflects mental stress in comfort / discomfort, the measured value before the intervention was 46.3 KU/L; that after the control period was 45.5 KU/L, with no major changes seen. After the intervention, on the other hand, the value was lowered to 33.4 KU/L with the statistically significant decrease of mental stress recognized (p/t, 1% level). Results of the GHQ-12: There were correlation between GHQ score and Alternating Trail Making, Attention, Abstraction, Delayed recall, Orientation, and total score, while cognitive function was high when mentality state was also healthiness.
Discussion and conclusion: Comfortable emotions will activate the intra-brain reward system area (A10 nervous system) to motivate activities. In this research, too, the result that confirms these has been obtained by showing that there is a correlation between the measured vale of saliva amylase that indicates stress and the result of the MoCA test that indicates cognitive functions; the lower the stress is, the higher the cognitive/thinking abilities are. In fact, increase of endorphin by music therapy and so on and decrease in plasma cortisol levels have been reported, thus these physiological reactions are considered to be factors to improve brain functions. Consequently, in the brain training, it was suggested that effectiveness against cognitive function is higher if the emotion at intervention is comfortable.

Image

0-30 KU/L	No negative stress.
31-45 KU/L	Slight negative stress.
46-60 KU/L	Negative stress.
61 KU/L or more	High amount of negative stress.

Correlation between cognitive function (MoCA test) and stress (α-amylase) Pearson product-moment correlation-coefficients. r=-0.397**

The reference values of salivary α- amylase: Upon stress, amylase activity levels in the body for self-defense reaction is increased.

Recent Publications

1. Sawami K, Kimura M, et al., (2017) Achievement of Brain Training Course for the Elderly. J Health Educ Res Dev, 5:1-4. Awards: World Academic Championship - 2017 in Nursing
2. Sawami K, Nakagawa H, et al., (2017) Relationship between cognitive function, vascular age and stress. IJCC 1:83-89.
3. Sawami K, Kimura M, et al., (2017) Verification of the Impact of Storage by the Rhythm Phrase to be Repeated. SF J Geriatrics Pallia Care, 1:1-6.
4. Sawami K, Nakagawa H, et al., (2017) Intellectual effects of delayed playback task and rhythmic activities. Ment Health Addict Res.2:1-6.
5. Sawami K, Nakagawa H, et al., (2017) Verification of Preventive Effect of Dual-Task and N-Back Task-Incorporated Music Therapy against Dementia. Neurochem Neuropharm Open Access. 3:1-5.

Biography:

Kazue Sawami is a professor at Nara Medical University and completed her PhD at health science. Her research is about the cognitive abilities of elderly people, please view current clinical trials below.
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