EMOTIONAL INTELLIGENCE AND EXECUTIVE DYSFUNCTION IN HEALTHY ADULTS BETWEEN 40 AND 60 YEARS OF AGE

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SUMMARY

Background: To study the possible associations between emotional intelligence and executive dysfunction, in healthy adults between 40 and 60 years of age.

Material/ Methods: A pilot, transversal study involving 60 subjects who met the inclusion and exclusion criteria. TMMS-24 was used for emotional intelligence. DEX-sp was used to assess the executive dysfunction.

Results: When testing bivariate associations between age, emotional intelligence and executive dysfunction, we found statistically significant associations between age and emotional intelligence (p = 0.01); age and executive dysfunction (p = 0.01); emotional intelligence and executive dysfunction (p = 0.01).

Conclusions: The present study found significant associations between emotional intelligence and executive dysfunction, in healthy adults between 40 and 60 years of age. Future studies might explore the interactions between each component of executive functions and each component of emotional intelligence over time.

Key words: emotional intelligence, executive dysfunction, healthy adults

INTRODUCTION

Emotional intelligence is considered to vary across adulthood [1-3]. Some studies report differences in emotional intelligence between younger and older healthy adults. The authors suggest that older adults pay less attention to stimuli that might increase negative moods and regulate negative emotions, redirecting their attention to something else entirely.

Adult´s neural substrates of emotional intelligence have been describe recently (4-6). Voxel based morphometry studies reported that the amount of attention paid to emotional states and the ability to regulate emotional states have distinct gray matter volume correlates in adults between 18 to 52 years of age. Lower scores in attention to emotions correlated with a lower gray matter volume in the right middle frontal, right inferior frontal, bilateral dorsal anterior cingulate gyri, ventromedial prefrontal cortex and the anterior cingulate cortex, while a poorer ability to regulate emotions was related to reduced volume in the left dorsal cingulate cortex.

With regard to executive functions, some studies have described cognitive decline in healthy adults under the age of 60. A transversal study that assessed attention, memory, executive functions, language and processing speeds in adults between the age of 40 and 50 reported cognitive deficits mainly in executive functions and to a lesser extent in processing speed while also finding an association between reduced cerebral gray matter volume, lower scores and older age [7]. Other authors suggest that decline in executive functions and memory performances is in part mediated by a relative age-related reduction in the frontal white matter in subjects between the age of 21 and 79 [8].

Concerning the relationship between emotional intelligence and executive functions, we have not found specific papers that explored the association between emotional intelligence and executive functions in healthy adults between the ages of 40 and 60 years.

Given the results summarized above, we decided to conduct a preliminary study of the possible associations between emotional intelligence and executive functions in healthy adults between the ages of 40 and 60 years. The purpose of the present paper is to give a brief report and discussion of the obtained data.

MATERIALS AND METHODS

A pilot, transversal study was conducted. Adults between the ages of 40 and 60 years who met the inclusion and exclusion criteria were included.

Inclusion criteria: outpatient consultation for general health check, had completed university studies, gainful employment.

Exclusion criteria: subjects with psychiatric disorders, neurological, cerebrovascular, metabolic, endocrine, immune, and head trauma.

A clinical physician specialized in psychiatry evaluates and invited adults who had met the inclusion and exclusion criteria to participate. A psychologist gave the participants an inform consent form and answered questions about this study.

The tests used to assess emotional intelligence and executive dysfunction were explained to participants who had given their informed consent.

TMMS-24 (9-12) was used to assess emotional intelligence. It is a self-administered scale consisting of 24 items with a five point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree". It´s include three subscales: attention, clarity and repair. Each of these subscales measures different aspects of emotional intelligence. The higher the scores, the more emotional the intelligence.

DEX-sp was used to assess executive dysfunction. This is a valid and reliable instrument to assess executive dysfunction in non-clinical adults (13-16). It is a self-administered questionnaire consisting of 20 items. Each item is scored on a 5-point Likert scale, between 'never' and 'very often'. The higher the scores the more the executive dysfunction.

Descriptive and inferential statistics were calculated using SPSS. ANOVA was used to analyse if there were any differences between the groups. Associations between age and emotional intelligence, age and executive dysfunction, emotional intelligence and executive dysfunction were examined using the Pearson coefficient. In all cases, p value <0.05 was considered as an indicator of statistical significance.

RESULTS

60 adults, mean age 45.14 ± 8.5 years old, 30 women and 30 men, mean age of the women 45 ± 7 and mean age of the men 46 ± 6, participated. The sample was divided into two groups according to age: Group 1 and Group 2 (see: Table 1).

There was no statistically significant differences between men and women for emotional intelligence and executive dysfunction. We found statistically significant differences between the groups for emotional intelligence: F = 42.64, p = 0.01, and executive dysfunction: F = 47.25, p = 0.01.When testing bivariate associations between emotional intelligence and executive dysfunction, we found statistically significant associations between age and emotional intelligence: Pearson's r = -0.458, p = 0.01; age and executive dysfunction: Pearson's r = 0.471, p = 0.01; emotional intelligence and executive dysfunction: Pearson's r = -0.422; p = 0.01.

Table 1. Sample characteristics

Characteristics	Group 1	Group 2
	n=30	n=30
mean age	45.18 ± 1.94	55.09 ± 1.56
mean attention score	33.3 ± 1.21	28.1 ± 1.23
mean clarity score	34.1 ± 1.3	29 ± 1.12
mean repair score	35.9 ± 1.31	29.8 ± 1.1
mean executive dysfunction score	13.27 ± 1.1	14.18 ± 1.06

DISCUSSION

The present study reports associations between emotional intelligence and executive dysfunction, in healthy adults between the ages of 40 and 60 years. In the sample studied, older adults (within the considered age interval) not only have lower scores on the repair subscale, but they also have lower scores on the attention and clarity subscales. The obtained results suggest that older adults (between 40 and 60 years of age) pay less attention to emotions, experience their feelings less clearly and have less ability to regulate emotions than younger ones. A lower DEX score might contribute to the poorer emotional regulation observed in this sample, compromising the efforts to change the duration or intensity of an emotion response, and vice versa, a lower score in repair might contribute to having a poor executive function, for example, negative emotions could impair memory updating.

On the contrary younger participants have higher scores in the repair, attention and clarity subscales and lower scores in DEX-sp. Emotions might help cognitive processes such as planning and inhibition, and the executive function might help to regulate emotional responses, particularly, in conflict situations, facilitating social interactions.

It would be desirable to conduct further and more detailed studies with larger samples sizes, using prospective designs. Future studies might explore interactions between each component of executive functions and each component of emotional intelligence over time. In addition, using neuroimaging techniques we might explore if emotional intelligence and executive functions have common neural substrates in healthy adults.

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